

EXHIBIT

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Ultima Services Corporation,)	
)	
Plaintiff)	
)	
vs.)	2:20-CV-00041-DCLC-CRW
)	
)	
U.S. Department of Agriculture, et al.)	
)	
Defendants.)	
)	
)	
)	

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Executive Summary

- In this report, I have analyzed recent evidence to determine whether minority-owned businesses in the United States face disparities in public and private contracting markets and, to the extent that disparities exist, to determine the likelihood that such disparities are caused by discrimination. The Section 8(a) Business Development Program at issue in this case is a federal government contracting program that provides contracting opportunities to small and disadvantaged business owners and has a presumption of disadvantage for members of certain minority groups.
- The expert analysis in this report seeks to establish whether minority business owners continue to face discrimination and the lingering effects thereof in the public contracting sector by analyzing three major sources of statistical evidence: (1) evidence from disparity studies commissioned by state and local governments and public contracting entities since 2010; (2) evidence from the U.S. Census Bureau's past and present data collection efforts dedicated to minority-owned businesses; and (3) evidence for minorities and minority business owners from the U.S. Census Bureau's *American Community Survey*.
- Since the U.S. Supreme Court's decision in *City of Richmond v. J.A. Croson Co.*, 488 U.S. 469 (1989), courts have consistently held that disparity studies—which examine the utilization of minority-owned businesses in public contracting relative to their availability in a particular geographic and contracting market—provide powerful evidence of discrimination and the continuing effects of discrimination justifying the use of remedial measures in public contracting.
- In Section II, I summarize and analyze the findings from 205 different disparity studies completed between 2010 and 2021, which collectively span 32 states and the District of Columbia and represent practically every industry segment in the U.S. economy. I found that 74 percent of the disparity indexes for minority-owned businesses across all procurement categories were large and adverse, and that minority-owned businesses facing large adverse disparities were utilized on average at just 25 percent of their availability, while median utilization was even lower at just 18 percent of availability. I found similarly large adverse disparities across all major industry sectors and for every minority group. This indicates that in the overwhelming number of public procurement markets, minority-owned businesses are underutilized based on their availability.
- The only two national surveys dedicated to minority-owned business enterprise are the Census Bureau's *Survey of Business Owners and Self-Employed Persons* (SBO) and its *Annual Business Survey* (ABS). Both provide evidence regarding how minority-owned businesses fare in the overall economy. In Section III, I examine data from both sources to determine whether consistent disparities are observed in aggregate data across the U.S. economy. Regardless of whether the SBO data or

the ABS data is examined, I found a consistent pattern of large, adverse, and statistically significant disparities in the performance of minority-owned businesses across all major industry sectors and for every minority group.

- Finally, in Section IV, using data from the Census Bureau's *American Community Survey 5-year Public Use Microdata Sample* (ACS PUMS), I directly test the likelihood that race-neutral factors can account for the large adverse racial disparities observed in the previous sections. Using the statistical technique of regression analysis to control for independent variables untainted by discrimination, I found that the disparities facing minority business owners remain large, adverse, and statistically significant in the vast majority of cases.
- In each of these sections, I have also analyzed disparities in contracts and procurements related to the industries in which the Plaintiff contracted with the U.S. Department of Agriculture to provide services, as the Plaintiff has challenged the use of the 8(a) Business Development Program in these industry segments specifically.
- Based on the data and findings presented in this report, I conclude that there is strong evidence of large, adverse, and statistically significant disparities facing minority-owned businesses in the United States, and in the business categories that the Plaintiff has challenged, and that these disparities cannot be explained by differences between the relevant populations in factors untainted by the effects of discrimination. These disparities are therefore consistent with the presence of discrimination in the business market.

I. Introduction

I have been asked to provide a statistical overview of the state of Minority-Owned Business Enterprises (“MBE”) in the United States, for the economy as a whole, and in the industry sectors relevant to this matter. I have done this in order to determine how minority-owned businesses fared in public and private contracting markets relative to non-MBEs and, to the extent that disparities exist, to determine the likelihood that such disparities are caused by discrimination.

My findings are drawn from several sources of evidence, including numerous studies of MBE participation in public sector contracting activity that have been performed in the wake of the U.S. Supreme Court’s ruling in *City of Richmond v. J. A. Croson Company*,¹ a number of which I conducted in conjunction with NERA Economic Consulting. These disparity studies examine statistical evidence of MBE participation in public sector and private sector business activity compared to MBE representation in the relevant business population. They also include qualitative, or anecdotal, accounts from both MBEs and non-MBEs regarding these disparities. Since *Croson*, courts have consistently held that such studies provide powerful evidence of discrimination and the continuing effects of discrimination, justifying the use of remedial measures in public contracting.

Additionally, I have drawn findings from the few primary sources of statistical evidence that exist regarding MBEs, namely the Census Bureau’s historical *Survey of Business Owners*, its new *Annual Business Survey*, and its ongoing *American Community Survey*. The *Survey of Business Owners* and its recent successor, the *Annual Business Survey*, provide information regarding the total number of MBEs in the country, their gross sales and receipts, and their employment and payroll, both in absolute terms as well as relative to their non-minority, male-owned counterparts. The *American Community Survey* is an annual version to the former decennial census long form and provides evidence regarding patterns of business formation by minority entrepreneurs and associated business earnings relative to their non-minority, male-owned counterparts. This Census Bureau data provides some of the best available evidence as to how minority businesses fare in the overall economy.

In preparing this report, I conducted extensive original research using all of the above-mentioned sources of evidence. This research is a continuation of similar research I have performed over the course of my career as an economist. Based on the findings presented below, I conclude that there is strong contemporary evidence of large, adverse, and statistically significant disparities facing minority-owned business throughout the United States, in the economy as a whole, and in each major procurement category and industry sector. Of the 205 disparity studies I reviewed, 74 percent of the disparity indexes for minority-owned businesses across all procurement categories were large and adverse, and minority-owned businesses facing large adverse disparities were utilized on average at just one-quarter of their availability, while median utilization was even lower at less than one-fifth of availability.

¹ 488 U.S. 469 (1989).

Moreover, these disparities cannot be adequately explained by differences between the relevant populations in factors untainted by the effects of discrimination. I conclude that these disparities result from discrimination and its lingering effects, in the economy as a whole, as well as in the market segments that are relevant to public sector contracting and purchasing and to the Plaintiff in the present matter.

A. Qualifications

I hold a Ph.D. in economics from the University of Texas at Austin. My graduate curriculum included advanced courses in statistics, econometrics and labor economics, among others. Prior to joining NERA Economic Consulting, Inc. in 1995, I served as a Research Associate Professor at the Lyndon B. Johnson School of Public Affairs at the University of Texas at Austin and also headed my own economic consulting firm. While at NERA, I conducted economic and statistical studies of discrimination for attorneys, corporations, governments and non-profit organizations. I also conducted research and advised clients on adverse impact and economic damage issues arising from contracting activities, hiring, termination, performance assessment, compensation, and promotion. I have extensive experience producing, processing, and analyzing large and complex statistical databases, including public sector contracting and purchasing data, as well as with myriad socioeconomic and demographic datasets produced by the Census Bureau and other official statistical agencies.

Over the course of my career, I have conducted economic and statistical research and assisted in litigation concerning minority and female participation in public contracting activities. From 2004 through 2018, I directed NERA's national discrimination consulting practice. In that capacity, I served as the project director and principal investigator for more than 40 studies of business discrimination, and prior to that time as principal or co-principal investigator on approximately a dozen additional business discrimination studies. I have authored two peer-reviewed monographs and several articles and white papers on this and related subjects, including *Guidelines for Conducting a Disparity and Availability Study for the Federal DBE Program*, published in 2010 by the *Transportation Research Board of the National Academy of Sciences*.²

Between 2010 and 2013 I served as an economic and statistical expert on behalf of the U.S. Department of Justice, testifying in four cases challenging federal policies to promote participation by disadvantaged groups in federal contracting activities. These were:

- *Kevcon, Inc. v. The United States* (United States Court of Federal Claims), concerning the Small Business Administration ("SBA") 8(a) Business Development Program.³
- *Geyer Signal, Inc. and Kevin Kissell v. Minnesota Department of Transportation, et al.* (United States District Court for the District of Minnesota), concerning the

² Wainwright and Holt (2010).

³ Wainwright, Jon S. (2010).

U.S. Department of Transportation (“USDOT”) Disadvantaged Business Enterprise (“DBE”) Program.⁴

- *Midwest Fence Corporation v. United States Department of Transportation, et al.* (United States District Court for the Northern District of Illinois, Eastern Division), concerning the USDOT DBE Program.⁵
- *Rothe Development, Inc. v. Department of Defense and Small Business Administration* (United States District Court for the District of Columbia), concerning the SBA 8(a) Business Development Program.⁶

I have been repeatedly qualified as an expert economic and statistical witness in both federal and state courts and have testified in these and related matters on 20 occasions. I have also testified before the United States Congress on these matters on five previous occasions.

My current curriculum vitae is attached to this report. The source material relied on in reaching my findings and conclusions are noted below in the body of my report and in the “References” section at the conclusion.

B. Evidence of Discrimination and its Lingering Effects Causing Disadvantage to Minority-Owned Business Enterprises

There is strong evidence of significant disparities facing minority-owned businesses in the United States. As other researchers have noted, and as demonstrated in many of the studies, reports, and other testimony submitted to Congress, individuals from minority groups have been historically and consistently disadvantaged by the effects of discrimination in business enterprise. Despite progress in some areas, these disadvantages are still present in business and contracting markets.⁷ As my report demonstrates, although severe disparities persist between non-minority male-owned firms and minority-owned firms, we are making progress thanks to programs like the SBA’s Section 8(a) Business Development Program and the USDOT DBE Program. The evidence is overwhelming that, the elimination or reduction of these programs would lead to a return of the much greater disparities of the past. I and other researchers arrive at this conclusion by examining both the public sector contracting markets where affirmative measures like the SBA 8(a) program are found as well as the private sector contracting markets where such programs are rare. This is why, although my report includes voluminous data from public sector sources like disparity studies, I also include a great deal of information from Census sources which examine markets that are largely unremediated by programs like the SBA 8(a) Program.

⁴ Wainwright, Jon S. (2012).

⁵ Wainwright, Jon S. (2013b), (2013c).

⁶ Wainwright, Jon S. (2013a).

⁷ See, generally, U.S. Department of Justice (2022); U.S. Small Business Administration (2010). See also U.S. Department of Commerce (2015); Rubinovitz (2013a); Rubinovitz (2013b); Lowrey (2010a); Lowrey (2010b); Marshall (2002); Wainwright (2000).

Blacks are 13.3 percent of the general population, 12.6 percent of the civilian labor force, and 12.2 percent of total employment. However, at the most recent complete count, Blacks owned only 9.5 percent of the nation's businesses, and earned a mere 1.26 percent of all business sales and receipts.⁸

Hispanics are 18.2 percent of the general population, 17.1 percent of the civilian labor force, and 17.0 percent of total employment. However, at last count Hispanics owned only 12.2 percent of the nation's businesses, and earned less than 4.0 percent of all business sales and receipts.

Native Americans are 1.3 percent of the general population, but they are only 1.0 percent of the business population and earned just 0.32 percent of business sales and receipts.

Asians represent 6.1 percent of the general population, 6.2 percent of the civilian labor force, and 6.2 percent of total employment. While Asians own 7.1 percent of the nation's businesses, they earned only 5.9 percent of business sales and receipts.

Even those minorities who manage against the odds to start their own businesses must compete in a business enterprise system that has long been dominated by non-minority male-owned firms.⁹ The advantages enjoyed by non-minority males in this context are borne out in the statistics. In a groundbreaking pair of studies of employer business closure rates, Professor Ying Lowrey documented that existing Black-owned, Hispanic-owned and Asian and Pacific Islander-owned businesses across a wide variety of industry groups suffered substantially higher closure rates during the 2002-2006 period than did their non-minority male counterparts.¹⁰ More recently, Professor Robert Fairlie has shown that Black, Hispanic, Asian, and Native American small businesses closed at higher rates than their non-minority male counterparts during the first month of widespread COVID-19 induced shelter-in-place restrictions in April of 2020.¹¹

Even among larger firms, such as those with one or more paid employees, the disparities between minorities, on the one hand, and non-minority males, on the other, are stark. In 2017, for every dollar in sales and receipts earned by non-minority male-owned employers, Black-owned employers earned 45 cents, Hispanic-owned employers earned 57 cents,

⁸ General population statistics are from the U.S. Census Bureau (2017a); civilian labor force and total employment figures are from the Bureau of Labor Statistics (2018a, 2018b, 2018c); business enterprise statistics are from the *2012 Survey of Business Owners*, U.S. Census Bureau (2018b). Note: Publicly-owned companies have been excluded from all calculations in this report that use *Survey of Business Owners* or *Annual Business Survey* statistics.

⁹ See, e.g., Wainwright (2000), pp. 17-22, and the studies cited therein.

¹⁰ Lowrey, Ying (2010a), pp. 20-21; Lowrey, Ying (2010b), p. 16. The comparison was between non-publicly held establishments that were in business in 2002 but had closed by 2006 versus all non-publicly held establishments in business in 2002.

¹¹ Fairlie, Robert (2020). p. 16.

Asian-owned employers earned 63 cents, and Native American-owned employers earned 67 cents.¹²

The overwhelming majority of businesses have less than 10 employees, and only a small fraction have more than 500 employees. Minority-owned firms are over-represented in the former category and under-represented in the latter. For the smallest firms in 2017, 78 percent of non-minority male-owned firms had less than 10 employees, compared to 82.1 percent of Black-owned firms, 82.3 percent of Hispanic-owned firms, 81.2 percent of Asian-owned firms, and 82.2 percent of Native American-owned firms.¹³ For the largest firms in 2017, 0.21 percent of non-minority male-owned firms had 500 or more employees, compared to 0.12 percent of Blacks, 0.1 percent of Hispanics, 0.07 percent of Asians, and 0.11 percent of Native Americans.¹⁴

¹² U.S. Census Bureau (2020a, 2020b). For employer firms, the data are from the 2017 Annual Business Survey, released in May 2020.

¹³ U.S. Census Bureau (2018b, 2018c, 2018d).

¹⁴ *Ibid.*

II. Studies Conducted Since 2010 Document Large Adverse Disparities Facing Minority-Owned Businesses

A. Introduction

Since the U.S. Supreme Court decision in *City of Richmond v. J.A. Croson Co.*,¹⁵ the disparities facing minority business owners in the United States have been documented in more than 500 studies and related research reports.¹⁶ This is because, since *Croson*, courts have consistently held that disparity studies—which examine the utilization of minority-owned businesses in public contracting relative to their availability in a particular geographic and contracting market—provide powerful evidence of discrimination and the continuing effects of discrimination justifying the use of remedial measures in public contracting.

Much of this material is already before Congress,¹⁷ including “Congressional hearings and reports that address the barriers faced by minority- and women-owned businesses; government-produced and government-sponsored reports on the characteristics and dynamics of minority- and women-owned small businesses; academic literature by social scientists, economists, and other academic researchers that focuses on the manner in which various forms of discrimination act together to restrict business opportunities for minorities and women; and disparity studies commissioned by state and local governments to determine whether there is evidence of racial discrimination in their contracting markets.”¹⁸

Table 2.1 below identifies 205 different disparity studies of minority business enterprise completed between 2010 and 2021, which collectively span 32 states and the District of Columbia and represent practically every industry segment in the U.S. economy.¹⁹ I assembled all the availability and utilization statistics from these studies into a database, as well as all the disparity indexes derived from them, in order to summarize and analyze the disparity findings across all of the studies.

B. Overview of Disparity Study Methods

Before proceeding to a summary and analysis of the evidence of minority business disparities in the United States, it is helpful to provide a short overview of what disparity studies are and the types of evidence they typically contain. Below I primarily describe the

¹⁵ 488 U.S. 469 (1989).

¹⁶ Wainwright and Holt (2010, 12, n. 41) noted 300 studies published between 1989 and 2008. I have catalogued an additional 250 studies published between 2009 through 2021.

¹⁷ See U.S. Department of Justice (2022); U.S. Small Business Administration (2010).

¹⁸ U.S. Small Business Administration (2010, p. 2). Most recently, see U.S. Congress (2021, p. 3) (noting 40 recent disparity studies placed into the *Congressional Record*).

¹⁹ Some disparity studies were published in multiple volumes, typically because multiple government entities were included, various appendices were included, or both. The 205 studies examined here therefore include 215 total volumes with relevant material.

key elements included in my own disparity studies. Many of these elements are found in other consultants' studies as well.²⁰ The key elements of a disparity study include:

- Determining the appropriate product market and geographic market area;
- Developing availability and utilization statistics; determining public entity contracting disparities;
- Calculating economy-wide disparities; and
- Collecting anecdotal evidence in order to check for consistency with statistical findings.

1. Determination of Relevant Geographic Market Area

The relevant geographic market area identifies those vendor locations that account for approximately 75 percent or more of contract and subcontract²¹ dollar expenditures in the project database for the study period. Firms in these locations are included for analysis in each study. Each study contains a section describing how the government entity's contract and subcontract data were collected and used to make this determination and showing the results.

Location is determined by linking the zip code of the contractor or subcontractor to the associated state and county. For multi-establishment firms, location does not have to be defined as the headquarters of the firm. If the firm has established a local presence, it is appropriate to use that address for purposes of market area determination.

The major contracting categories typically examined include: construction; architecture, engineering and other construction-related professional services ("AECRS"); other professional and general services ("services"); and commodities, supplies, and equipment ("CSE"). In some cases, separate geographic market determinations are made for each major procurement category, as well as for a combined category.²²

2. Determination of Relevant Product Market

The relevant product market identifies the detailed industries that account for approximately 75 percent or more of contract and subcontract dollar expenditures in the project database for the study period. Firms in these industries are included for analysis in each study. The amounts accounted for by each industry are listed by dollars and also as a percentage of overall spending. The percentage distribution by industry is used elsewhere in the study to calculate overall MBE availability as a dollar-weighted average of detailed

²⁰ These are discussed in more detail in Wainwright and Holt (2010, 29–53).

²¹ By "subcontract" I intend to include subcontractors, subconsultants, suppliers, and in general, any firm that is paid by the prime contractor or vendor to provide goods or services.

²² See, e.g., Wainwright and Holt (2010, 29).

industry level MBE availability. Detailed industry affiliation is determined by assigning a NAICS code, as appropriate, to each establishment in the project database.²³

3. Determination of MBE Availability

MBE availability is a statistic expressing the percentage of businesses in a relevant geographic and product market that are owned by minorities.

To estimate availability, my own studies used a “custom census” designed to provide an accurate calculation of the current availability of MBEs in the relevant market.²⁴ Other consultants have employed different methods for measuring availability, including the use of vendor lists, bidder lists, and other types of Census data, as well as variations of the custom census. A variety of approaches to measuring availability are reflected in the disparity studies identified in Table 2.1.

The custom census approach employs a seven-step analysis that: (1) creates a database of representative public contracts, (2) identifies the appropriate geographic market for the entity’s contracting activity, (3) identifies the appropriate product market for the entity’s contracting activity, (4) counts all businesses in those relevant markets, (5) identifies listed minority-owned businesses in the relevant markets, (6) verifies the ownership status of listed minority-owned businesses, and (7) verifies the ownership status of all other businesses. This method results in an overall MBE availability number that is a dollar-weighted average of all of the underlying industry availability numbers, with larger weights applied to industries with relatively more spending and lower weights applied to industries with relatively less spending. The availability figure can also be sub-divided by race, ethnicity, and gender group, where required.²⁵

In addition to the custom census, another relatively common approach is to use internal agency lists of contractors and subcontractors, such as certified MBE/WBE directories, bidders lists, prequalified contractor lists, licensed contractor lists, plan holder lists, or lists of winning bidders or sub-bidders. Internal lists are sometimes supplemented with lists gathered from other sources. I refer to this as the “bidders list approach.”

²³ NAICS stands for North American Industry Classification System and has been the standard system of industrial classification for the United States since replacing the Standard Industrial Classification (SIC) system in 1997. NAICS divides the economy into 20 sectors. The industries within each sector are grouped according to their production processes. Each NAICS code has 6 digits at the most detailed level. The first two identify industry sectors. The first three identify industry subsectors. The first four identify industry groups, and the fifth and sixth digits identify individual industries. See U.S. Office of Management and Budget (2017).

²⁴ See, e.g., *Concrete Works of Colorado, Inc. v. City and County of Denver*, 321 F.3d 950, 966 (10th Cir. 2003), cert. denied, 540 U.S. 1027 (2003) (custom census is “more sophisticated” than earlier studies using Census data and bidders’ lists); *Northern Contracting, Inc. v. Illinois Department of Transportation*, 473 F.3d 715, 723 (7th Cir. 2007); *Sherbrooke Turf, Inc. v. Minnesota Department of Transportation*, 345 F.3d 964 (8th Cir. 2003), cert. denied, 124 S.Ct. 2158 (2004) at 973.

²⁵ See Wainwright and Holt (2010, 33-44) for an extended discussion of the custom census approach.

Still other methods of estimating availability employ variations on the custom census approach or the bidders list approach that attempt to control for factors that are themselves likely to be directly and adversely impacted by discrimination if it exists in the relevant markets.²⁶

4. Determination of Agency MBE Utilization

MBE utilization is a statistic showing the fraction of public contracting and procurement dollars in a particular market that is spent with MBEs.

The project database assembled for a disparity study will typically detail several years of recent contract and subcontract activity for both MBEs and non-MBEs. Utilization statistics—that is, the percentage of contract and subcontract dollars spent with MBEs—can be calculated along a variety of dimensions, including by race and ethnicity, by time period, and by major procurement category.

Many studies conduct separate utilization analyses for prime contracts versus subcontracts, as well as for both types of contracting combined, which often provides the fullest picture of MBE participation relative to an agency's spending. If the project database has been coded by NAICS, utilization statistics can also be produced for detailed industry categories. In a typical study, utilization statistics are then combined with availability measures to determine disparity indexes or disparity ratios.

5. Determination of Agency MBE Disparity

A disparity index or disparity ratio is simply a comparison of MBE utilization to MBE availability for a given group in a given geographic and product market for a given public agency. The only difference between a disparity index and a disparity ratio is that the former benchmarks parity at a level of 100 while the latter benchmarks it at a level of 1. Testing a disparity index or disparity ratio for substantive and statistical significance allows us to identify, respectively, whether a disparity is large and whether it could have arisen due to random chance alone.

It is important to note that many of the studies in Table 2.1 tested for disparities on contracts and subcontracts that were already subject to race-conscious contracting aspirations or requirements of some type. If such studies find “overutilization” in certain categories, policy makers or courts may be inclined to conclude that there is an absence of discrimination. This would be premature, however, because the results of MBE utilization on projects with MBE contracting goals likely include the positive impact of remedial efforts by the public sector. Of course, if adverse disparities are observed even in cases

²⁶ Firm revenues, employment size, bonding limits, and similar “capacity” measures are all likely to be influenced by the presence of discrimination if it exists in the relevant markets. Consequently, building such metrics into the measure of availability will cause any resulting disparity statistic to be understated. That is, the built-in downward bias in the availability measure may lead to a conclusion of no significant disparity when, in fact, a disparity exists.

where race-conscious efforts are present, then the case for an inference of discrimination is stronger.²⁷

6. Determination of Economy-Wide Disparity Analyses for the Relevant Markets

Disparity studies often include a variety of additional statistical analyses that assess how minorities fare in several key aspects of business enterprise activity. This type of analysis helps to determine whether an agency is passively participating in an industry segment tainted by discrimination. Evidence of economy-wide discrimination in disparity studies can take several forms:

- Regression analyses comparing business formation rates between minorities and similarly situated non-minority males in the relevant markets, using the *Public Use Microdata Sample* from the *American Community Survey*.²⁸
- Regression analyses comparing the earnings of minority business owners to those of similarly situated non-minority male business owners in the relevant markets, using the *Public Use Microdata Sample* from the *American Community Survey*.
- Regression analyses comparing denial rates on commercial loans between minority and similarly situated non-minority male business owners, using data from the *Survey of Small Business Finances* produced by the Federal Reserve Board and the Small Business Administration.
- Disparity indexes comparing market share of revenues to market share of business population between minority and non-minority businesses, using data from the Census Bureau's *Survey of Business Owners* or its *Annual Business Survey*.
- Disparity indexes comparing minority utilization to availability, using participation data on private sector construction projects from sources such as *Reed Construction Data* or *F. W. Dodge* or public agency contracting permit databases.

²⁷ For example, as documented in NERA's disparity studies, MBEs who are used by prime contractors on projects with MBE goals nevertheless frequently report that they are rarely used, *or even solicited*, for projects without MBE goals in the same jurisdiction. *See, e.g.*, Memphis-Shelby County Airport Authority 2013, pp. 220-221 (Bates US0038930-US0038931); Massachusetts Division of Capital Asset Management and Maintenance 2017, pp. 209-211 (Bates US0017737-US0017738); State of Maryland 2017, pp. 265-266 (Bates US0004163-US0004164); City of Austin 2017, pp. 305-307 (Bates US0136445-US0136446).

²⁸ Regression analysis is a type of statistical analysis that examines the correlation between two variables ("regression") or three or more variables ("multiple regression" or "multivariate regression") in a mathematical model by determining the line of best fit through a series of data points. In simpler terms, regression analysis is a statistical technique allowing the comparison between certain outcomes, such as the level of wages, the extent of business formation, the level of business earnings, or the extent of loan denials, and minority status, while holding other, potentially non-discriminatory factors, such as geographic location, industry affiliation, education, age, or balance sheets, constant.

7. Collection of Anecdotal Evidence

Anecdotal evidence consists of personal accounts from business owners, MBE and non-MBE alike, concerning the barriers, challenges, and successes they experience in the marketplace.

Anecdotal evidence is an important part of a disparity study because it can confirm or conflict with the trends shown in the statistical analyses. Anecdotal evidence can be collected in a variety of formats including mail or telephone surveys, individual interviews, group interviews or focus groups, and public hearings or meetings. All of these approaches can produce qualitative evidence of barriers to full and fair participation by MBEs in public contracting processes. Some disparity studies often employ multiple approaches to gathering this type of evidence, *e.g.*, surveys and focus groups and individual interviews.

Studies typically gather evidence from MBEs as well as non-MBEs and try to document the extent to which barriers reported by anecdotal sources are the result of discrimination beyond the usual challenges facing all businesses related to obtaining capital, navigating business networks, finding suppliers, managing cash flow, *etc.*²⁹ As a measure of continuing barriers to full participation in the market, special emphasis is often placed on the experiences of MBEs that desire to obtain prime contracts and subcontracts. Studies typically strive to have a wide enough variety of interviewees, survey participants, *etc.*, to ensure representation of all MBE and non-MBE types and all major procurement categories.

C. Data and Methods

Table 2.1 below identifies 205 different studies of minority business enterprise completed by 12 different authors between 2010 and 2021. The study authors are:

- BBC Research & Consulting ("BBC") (45 studies);
- Colette Holt & Associates ("CHA") (28 studies);
- Econsult Solutions, Inc. ("ECONSULT") (9 studies);
- Griffin & Strong, PC ("GSPC") (17 studies);
- Keen Independent Research, LLC ("KEEN") (25 studies);
- Mason Tillman Associates, Ltd ("MTA") (23 studies);
- MGT of America ("MGT") (32 studies);

²⁹ Indeed, my own work on NERA's disparity studies has shown that although *all* small businesses tend to face such problems, MBEs encounter them with greater frequency and intensity than do non-MBEs in the same jurisdiction. *See, e.g.*, City of Minneapolis 2010, p. 251 (Bates US0121718); Jackson Municipal Airport Authority 2012, p. 272 (Bates US0086034); City of San Antonio 2015, p. 265-266 (Bates US0024887); State of Maryland 2017, p. 265 (Bates US0004163).

- Miller3 Consulting Inc. ("MILLER3") (2 studies);
- NERA Economic Consulting ("NERA") (21 studies);
- Rosales Business Partners, LLC ("ROSALES") (1 study);
- Texas A&M University, Corpus Christi - South Texas Economic Development Center ("TXAMCC") (1 study); and
- The Roy Wilkins Center for Human Relations and Social Justice ("RWC") (1 study).

I assembled all the availability and utilization statistics from these studies, as well as all the disparity indexes derived from these statistics, into a database in order to summarize and analyze the findings across all of the studies. The resulting file contains over 53,000 records.³⁰ Each record includes an availability statistic, a public sector utilization statistic, and the resulting disparity index.

Each record in the database is categorized along several key dimensions. These are provided for every record and include:

- Study Author (BBC, CHA, ECONSULT, GSPC, KEEN, MTA, MGT, MILLER3, NERA, ROSALES, TXAMCC, RWC);
- Race and sex group (minorities, non-minority women, non-minority men);³¹
- Detailed race/sex group (Black, Hispanic, Asian, Native American, non-minority women, non-minority men);
- Major procurement category (Construction, AECS, professional services, general services, CSE, and overall);³²
- Contractor level (prime contractors and subcontractors combined, prime contractors only, subcontractors only); and

³⁰ The database includes an additional 122K records classified by minor procurement category. However, 98 percent of those records originate from just one study author (NERA).

³¹ Per 13 CFR §124.103(b)(1), presumptively disadvantaged groups in the SBA 8(a) Program include Black Americans, Hispanic Americans, Asian Pacific Americans, Subcontinent Asian Americans, and Native Americans (including Alaska Native, Native Hawaiian, and American Indian). Most disparity studies did not distinguish Asian Pacific and Subcontinent Asian. Those two groups are therefore combined in the database.

³² Different authors used somewhat varying procurement categories to present their results. I created indicator variables for Construction; AECS; Professional Services (other than AECS); General Services; Goods; and All Industries Combined in order to group results as consistently as possible across all studies in the database.

- Key parameters from the underlying study, identifying the public sector agency(ies), state(s), study publication year, study period start year, study period end year, and accounting year type (calendar, state fiscal, federal fiscal).

Additionally, each record may contain other categories captured in different studies. Thus, some records in the database also contain information on:

- Statistical significance testing for disparity indexes;
- Public funding sources (*e.g.*, local, state, federal, mixed public/private);
- Detailed procurement categories (varying from the 2- or 3-digit NAICS level down to 6-digit NAICS level);
- Whether MBE goals were in place or not;
- Agency sub-divisions;
- Geographic sub-divisions; and
- Contract size limitations (*e.g.*, small contracts, large contracts, contracts under \$25K, contracts over \$1M).

Collectively, the 205 studies identified in Table 2.1 examined minority participation in public contracting and procurement for hundreds of different public entities and funding sources. The studies spanned 32 states and the District of Columbia, and combined accounted for approximately \$710 billion in public spending. Of the 205 studies, 87 (42% of the total) were just published in the last five years, spanning 28 states and accounting for approximately \$390 billion in public spending (55% of the total).³³

A wide variety of state and local government types are represented in these disparity studies, including:

- Entire states (*e.g.*, Colorado, Indiana, Maryland, New York, Rhode Island, Virginia, and Washington);
- State transportation departments, (*e.g.*, Alaska, Arizona, California, Georgia, Hawaii, Idaho, Illinois, Maryland, Minnesota, Missouri, Montana, Nevada, North Carolina, Ohio, Oklahoma, Oregon, Pennsylvania, Texas, and Washington);
- State general administration and purchasing departments (*e.g.*, Illinois, Indiana, Massachusetts, Minnesota, Missouri, North Carolina, and Pennsylvania);

³³ Twenty-one of these studies were conducted under my direction at NERA. Over the course of those studies, I personally analyzed roughly \$68 billion worth of public sector spending across more than 100,000 prime contracts or purchases and 154,000 subcontracts.

- Cities (*e.g.*, Arlington, Ashville, Atlanta, Austin, Boston, Charlotte, Chattanooga, Chicago, Cincinnati, Cleveland, Columbus, Dallas, Dayton, Fort Worth, Frederick, Greensboro, Houston, Indianapolis, Jacksonville, Jersey City, Kansas City, Madison, Memphis, Minneapolis, New Orleans, New York, Oakland, Pensacola, Philadelphia, Portland, Portsmouth, St. Paul, San Antonio, San Diego, Savannah, Tacoma, Tulsa, Virginia Beach, and Winston-Salem);
- Counties (*e.g.*, Baltimore, MD; Bexar, TX; Broward, FL; Cook, IL; Cuyahoga, OH; Dallas, TX; Harris, TX; Hennepin, MN; Jackson, MO; Mecklenburg, NC; Miami-Dade, FL; Montgomery, MD; Palm Beach, FL; Shelby, TN; St. Louis, MO; and Travis, TX); and
- Special districts including schools, community colleges, universities, public utilities, housing authorities, airports, transit agencies, and others.

Collectively, the 205 studies identified examined contracts and procurements representing practically every industry segment in the U.S. economy. These are grouped generally into the major procurement categories of construction, AECRS, professional services (other than AECRS), general services, and CSE. This comprehensive group of procurement categories reflects the fact that state and local governments, and their prime contractors and vendors, purchase goods and services from businesses in practically every major industry sector in the economy. NERA's most recent study for the State of Maryland, for example, recorded spending with 695 distinct industries.³⁴

In addition to covering most major industry sectors, the studies in Table 2.1 span the country geographically, representing all four Census Regions (Northeast, South, Midwest, and West) and all nine Census Divisions (New England, Middle Atlantic, South Atlantic, East South Central, West South Central, Midwest, West North Central, Mountain, and Pacific). In all, 32 states plus the District of Columbia are represented here, including the State of Tennessee where the Plaintiff is based. Collectively, these states hold over 85 percent of the general population of the United States.³⁵

³⁴ NERA Economic Consulting (2017, p. 45). Public sector spending is not typically distributed evenly among industries, however. In the State of Maryland's case, 261 industries (38 percent) accounted for 99 percent of all spending over the study period.

³⁵ U.S. Census Bureau (2019a, 2019b).

Table 2.1. Selected Disparity and Availability Studies Performed in the United States Since 2010.

State	Subdivision	Authors	Publication Year	Study Period	Bates Start	Bates End	Call Nos.
AK	Alaska Dept. of Transportation & Public Facilities	MGT	2014	2007-2011 FF	US0002109	US0002226	S-0521 001
AK	Alaska Dept. of Transportation & Public Facilities	MGT	2021	2015-2019 SF	US0031979	US0032117	S-2000 001
AZ	Arizona Department of Transportation	KEEN	2015	2008-2013 SF	US0002227	US0002821	S-0535
AZ	Arizona Department of Transportation	KEEN	2020	2014-2018 FF	US0032324	US0033015	S-2001
CA	Burbank-Glendale-Pasadena Airport Authority	BBC	2012	2005-2009 CY	US0076014	US0076867	S-0514
CA	California Department of Transportation	BBC	2012	2007-2010 CY	US0077258	US0078082	S-0506
CA	California Department of Transportation	BBC	2014	2008-2013 FF	US0078092	US0078600	S-0559
CA	California Department of Transportation	BBC	2021	2015-2019 CY	US0116164	US0117219	S-2045
CA	California Department of Transportation (Caltrans)	BBC	2017	2011-2014 CY	US0004446	US0004886	S-0604
CA	City of San Diego	BBC	2021	2015-2019 SF	US0117492	US0118150	S-2036
CA	Imperial County	BBC	2014	2008-2012 CY	US0014575	US0015163	S-2003
CA	L. A. County Metro. Transp. Auth. (LA Metro)	BBC	2018	2011-2015 CY	US0015789	US0016376	S-0602
CA	L. A. County Metro. Transp. Auth. (LA Metro)	BBC	2010	2003-2007 CY	US0084491	US0085261	S-1412
CA	Orange County Transportation Authority	BBC	2010	2003-2007 CY	US0088058	US0088818	S-1410
CA	San Diego Association of Governments	BBC	2014	2008-2012 CY	US0025471	US0026097	S-0560
CA	San Diego Association of Governments	BBC	2010	2003-2007 CY	US0134725	US0135474	S-1411
CA	San Diego County Regional Airport Authority	BBC	2010	2003-2006 CY	US0128151	US0128811	S-1408
CA	San Diego Metropolitan Transit System	BBC	2010	2003-2006 CY	US0128812	US0129568	S-1409
CA	John Wayne Airport County of Orange California	MGT	2016	2010-2015 SF	US0127338	US0127649	S-0579 001
CA	California High-Speed Rail Authority	MTA	2014	2007-2013 SF	US0126423	US0126606	S-0551
CA	City of Oakland	MTA	2020	2012-2016 SF	US0033350	US0033651	S-0615
CA	L. A. County Metro. Transp. Auth. (LA Metro)	MTA	2013	2008-2010 CY	US0011989	US0012297	S-0508
CA	San Francisco Bay Area Rapid Transit District	MILLER3	2017	2011-2014 SF	US0026098	US0026645	S-0570 001
CA	San Francisco Municipal Transp. Agency (Muni)	ROSALES	2015	2009-2015 FF	US0026646	US0026928	S-0558
CO	City and County of Denver	BBC	2018	2012-2016 CY	US0035636	US0036326	S-2004
CO	State of Colorado	KEEN	2020	2015-2018 SF	US0034586	US0035315	S-2005
CO	City and County of Denver	MGT	2013	2005-2010 CY	US0124629	US0125283	S-0510
CO	Denver Public Schools	MGT	2015	2009-2013 CY	US0081016	US0081335	S-0525 001
DC	Washington Suburban Sanitary Commission	MGT	2016	2010-2014 SF	US0031425	US0031942	S-0552
DC	Washington Suburban Sanitary Commission	MTA	2011	2004-2009 SF	US0074050	US0074462	S-0468
FL	City of Pensacola	MGT	2012	2007-2011 SF	US0009170	US0009629	S-0477
FL	City of Tallahassee, Leon County, and Blueprint	MGT	2019	2013-2017 SF	US0011040	US0011562	S-2006
FL	Hillsborough County Aviation Authority	MGT	2015	2008-2012 SF	US0126940	US0127337	S-0577
FL	Miami-Dade County Public Schools	MGT	2014	2007-2007 SF	US0125284	US0125762	S-0516
FL	Broward County Public Schools	MTA	2015	2009-2013 SF	US0076868	US0077257	S-0541
FL	City of Jacksonville	MTA	2013	2006-2010 SF	US0015164	US0015481	S-0518
FL	Miami Dade County	MTA	2015	2007-2011 CY	US0081571	US0082108	S-0573
FL	Palm Beach County	MTA	2017	2009-2013 CY	US0022740	US0023024	S-0589

State	Subdivision	Authors	Publication Year	Study Period	Bates Start	Bates End	Call Nos.
FL	Solid Waste Authority of Palm Beach County	MTA	2017	2009-2013 SF	US0049121	US0049404	S-0574 001
FL	Broward County	NERA	2010	2005-2009 SF	US0120188	US0120602	S-0414
GA	Georgia Department of Transportation	BBC	2012	2009-2011 CY	US0012659	US0013175	S-0461
GA	City of Savannah	GSPC	2016	2010-2014 CY	US0126607	US0126939	S-0556
GA	Georgia Department of Transportation	GSPC	2016	2012-2015 SF	US0013176	US0013479	S-0571
GA	Atlanta Housing Authority	KEEN	2017	2013-2015 SF	US0002822	US0003325	S-2007
GA	Atlanta Public Schools	KEEN	2017	2012-2016 SF	US0033016	US0033033	S-0591 002
GA	City of Atlanta	KEEN	2015	2009-2012 CY	US0135905	US0136115	S-0557
HI	Hawaii Department of Transportation	KEEN	2020	2012-2016 SF	US0036425	US0037241	S-2008
HI	Hawai'i Department of Transportation	NERA	2010	2003-2008 FF	US0082292	US0082726	S-0411
ID	Idaho Transportation Department	BBC	2017	2012-2015 SF	US0037242	US0037763	S-0578
IL	Illinois Department of Transportation	BBC	2018	2013-2016 SF	US0013864	US0014427	S-2009
IL	Chicago Metra	CHA	2016	2009-2013 CY	US0134525	US0134724	S-2042
IL	Chicago Regional Transportation Authority	CHA	2017	2009-2013 CY	US0134383	US0134524	S-2041
IL	Chicago Transit Authority	CHA	2019	2012-2016 FF	US0037764	US0037961	S-0622
IL	City of Chicago	CHA	2021	2015-2019 CY	US0117220	US0117491	S-2046
IL	Cook County	CHA	2015	2010-2014 SF	US0115272	US0115443	S-2039
IL	Illinois State Toll Highway Authority	CHA	2015	2010-2012 CY	US0014428	US0014574	S-0540
IL	Metro. Water Reclamation Dist. of Greater Chicago	CHA	2014	2008-2014 CY	US0090989	US0091195	S-0538
IL	Pace Suburban Bus	CHA	2015	2008-2012 CY	US0088974	US0089172	S-0563
IL	State of Illinois Dept. of Central Mgmt. Services	CHA	2015	2010-2011 SF	US0028542	US0028736	S-0553
IL	Il. State Toll Highway Auth. & Il. Dept. of Transp.	MTA	2011	2006-2008 CY	US0082831	US0083177	S-0438 001 & S-0438 002
IN	Ball State University	BBC	2016	2010-2013 SF	US0131005	US0131540	S-1551
IN	City of Indianapolis and Marion County	BBC	2019	2014-2018 CY	US0008311	US0008938	S-0620
IN	Indiana Department of Administration	BBC	2010	2007-2010 SF	US0121751	US0122054	S-0431 001
IN	Indiana Department of Administration	BBC	2016	2010-2013 SF	US0028737	US0029289	S-1549
IN	Indiana State University	BBC	2016	2010-2013 SF	US0130469	US0131004	S-1550
IN	Indiana University	BBC	2016	2010-2013 SF	US0131541	US0132083	S-1552
IN	Ivy Tech Community College	BBC	2016	2010-2013 SF	US0132084	US0132623	S-1553
IN	Purdue University	BBC	2016	2010-2013 SF	US0132624	US0133165	S-1554
IN	State of Indiana	BBC	2020	2014-2018 SF	US0075166	US0076013	S-2031
IN	University of Southern Indiana	BBC	2016	2010-2013 SF	US0133166	US0133701	S-1555
IN	Vincennes University	BBC	2016	2010-2013 SF	US0133702	US0134238	S-1556
KY	Louisville & Jefferson County Metro. Sewer Dist.	MTA	2018	2011-2015 SF	US0037962	US0038231	S-0658
LA	City of Baton Rouge, Parish of East Baton Rouge	KEEN	2019	2013-2017 CY	US0003326	US0003883	S-2012
LA	City of New Orleans	KEEN	2018	2012-2016 CY	US0033965	US0034486	S-0605
LA	Rec. & Park Comm., Parish of E. Baton Rouge	KEEN	2019	2014-2018 CY	US0024090	US0024643	S-2013
MD	City of Frederick	GSPC	2021	2014-2018 SF	US0078951	US0079187	S-0631
MD	Montgomery County	GSPC	2014	2008-2012 SF	US0135486	US0135778	S-0526

State	Subdivision	Authors	Publication Year	Study Period	Bates Start	Bates End	Call Nos.
MD	Baltimore County	MTA	2021	2013-2017 SF	US0081336	US0081562	S-0653
MD	Baltimore County Public Schools	NERA	2014	2007-2013 CY	US0126079	US0126422	S-0544
MD	City of Baltimore	NERA	2014	2007-2012 CY	US0005423	US0005859	S-0520
MD	Maryland Department of Transportation	NERA	2013	2005-2009 SF	US0038232	US0038692	S-0569_001, S-0569_002 & S-0569_003
MD	Maryland Department of Transportation	NERA	2018	2010-2014 SF	US0083783	US0084092	S-0659_001, S-0659_002 & S-0659_003
MD	State of Maryland	NERA	2011	2005-2009 SF	US0083178	US0083782	S-0428
MD	State of Maryland	NERA	2017	2010-2014 SF	US0003884	US0004445	S-0584
MA	City of Boston	BBC	2021	2015-2019 SF	US0074463	US0075165	S-2030
MA	Div. of Capital Asset Mgmt. & Maint. (DCAMM)	NERA	2017	2010-2015 CY	US0017512	US0017870	S-0581
MN	City of Minneapolis	KEEN	2018	2012-2016 SF	US0040133	US0040774	S-1594
MN	City of Saint Paul	KEEN	2018	2012-2016 SF	US0040775	US0041420	S-1596
MN	Hennepin County	KEEN	2018	2012-2016 SF	US0042704	US0043353	S-1589
MN	Metropolitan Airports Commission	KEEN	2018	2012-2016 SF	US0039492	US0040132	S-1590
MN	Metropolitan Council	KEEN	2018	2012-2016 SF	US0043354	US0043996	S-1591
MN	Metropolitan Mosquito Control District	KEEN	2018	2012-2016 SF	US0043997	US0044631	S-1592
MN	Minnesota Department of Administration	KEEN	2018	2012-2016 SF	US0041421	US0042062	S-1588
MN	Minnesota Department of Transportation	KEEN	2018	2012-2016 SF	US0042063	US0042703	S-1593
MN	Minnesota State Colleges and Universities	KEEN	2018	2012-2016 SF	US0044632	US0045269	S-1595
MN	Metropolitan Airports Commission	MGT	2010	2005-2007 CY	US0129853	US0130105	S-1442
MN	Metropolitan Council	MGT	2010	2003-2007 CY	US0085494	US0085742	S-1438
MN	Minnesota Department of Administration	MGT	2010	2002-2007 CY	US0129569	US0129852	S-1439
MN	Minnesota Department of Transportation	MGT	2010	2002-2007 CY	US0085262	US0085493	S-1437
MN	City of Minneapolis	NERA	2010	2003-2007 CY	US0121454	US0121750	S-0429 001
MS	Jackson Municipal Airport	NERA	2012	2005-2010 FF	US0085743	US0086250	S-0509 001
MO	City of Kansas City, MO Public School System	CHA	2017	2008-2013 CY	US0115564	US0115657	S-2044
MO	City of Kansas City, Missouri	CHA	2017	2008-2013 CY	US0015482	US0015627	S-0576
MO	Jackson County, Missouri	CHA	2016	2008-2013 CY	US0135779	US0135904	S-2011
MO	Kansas City Area Transportation Authority	CHA	2017	2008-2013 CY	US0115444	US0115563	S-2043
MO	State of Missouri Office of Administration	CHA	2014	2008-2013 SF	US0029290	US0029462	S-0527
MO	St. Louis County	GSPC	2017	2012-2015 SF	US0027960	US0028223	S-0586 001
MO	Missouri Department of Transportation	KEEN	2019	2014-2018 FF	US0018431	US0018615	S-2014
MO	City of St. Louis	MTA	2015	2008-2012 SF	US0011563	US0011739	S-0534
MO	St Louis Metropolitan Sewer District	MTA	2012	2008-2012 SF	US0028224	US0028541	S-0505 001
MO	Missouri Department of Transportation	NERA	2012	2005-2009 SF	US0086397	US0086796	S-0501 001
MT	State of Montana Department of Transportation	KEEN	2016	2010-2014 FF	US0018616	US0019254	S-0554
NJ; NY	Port Authority of New York and New Jersey	MTA	2018	2010-2014 CY	US0128033	US0128150	S-0618
NV	Regional Transp. Commission of Southern Nevada	BBC	2017	2010-2014 FF	US0020299	US0020879	S-2015

State	Subdivision	Authors	Publication Year	Study Period	Bates Start	Bates End	Call Nos.
NV	Nevada Department of Transportation	KEEN	2013	2007-2012 CY	US0019639	US0020298	S-0515
NJ	Newark Public Schools	CHA	2017	2007-2014 CY	US0087133	US0087236	S-0626
NJ	City of Jersey City	MGT	2011	2002-2008 SF	US0125763	US0125763	S-0523
NJ	NJ Transit	RWC	2016	2010-2013 FF	US0087237	US0087288	S-2035 001
NY	City of New York	MGT	2018	2007-2015 SF	US0008939	US0009169	S-0594 001
NY	State of New York	MTA	2017	2011-2015 SF	US0029463	US0029776	S-0582 001
NY	State of New York	NERA	2010	2004-2008 SF	US0120986	US0121453	S-0427 001
NC	City of Asheville	BBC	2019	2013-2017 SF	US0004887	US0005391	S-0608
NC	City of Charlotte	BBC	2017	2015-2016 SF	US0005860	US0006423	S-0587
NC	North Carolina Department of Transportation	CHA	2014	2010-2012 SF	US0020880	US0021046	S-0524
NC	City of Greensboro	GSPC	2018	2012-2016 SF	US0013480	US0013846	S-2016
NC	Durham County/City of Durham	GSPC	2015	2008-2012 SF	US0012360	US0012658	S-0530
NC	Mecklenburg County, North Carolina	GSPC	2020	2016-2019 SF	US0084235	US0084490	S-2029 001
NC	State of North Carolina	GSPC	2020	2014-2018 SF	US0045270	US0045519	S-0639_001 & S-0639_002
NC	City of Charlotte	MGT	2011	2006-2010 SF	US0087587	US0088057	S-0435
NC	City of Greensboro North Carolina	MGT	2012	2006-2010 SF	US0007470	US0008015	S-0474
NC	City of Winston-Salem	MGT	2019	2014-2018 SF	US0092196	US0092315	S-0610 001
NC	Guilford County Schools	MGT	2016	2010-2014 SF	US0118603	US0119009	S-0572
OH	Ohio Department of Transportation	BBC	2016	2010-2014 CY	US0021418	US0021933	S-0550
OH	Cuyahoga County	GSPC	2014	2009-2012 SF	US0118151	US0118602	S-0536
OH	Cuyahoga County	GSPC	2020	2014-2018 SF	US0045615	US0045842	S-2034
OH	City of Dayton	MGT	2019	2013-2017 CY	US0088819	US0088973	S-0625
OH	City of Cincinnati	MTA	2015	2009-2013 CY	US0006424	US0006761	S-0539
OH	City of Columbus	MTA	2019	2012-2015 CY	US0050156	US0050373	S-0614 001
OH	City of Cleveland	NERA	2012	2006-2010 SF	US0006762	US0007469	S-0504 001
OH	Northeast Ohio Regional Sewer District	NERA	2010	2004-2008 CY	US0021047	US0021417	S-0415
OK	Oklahoma Department of Transportation	BBC	2010	2005-2009 SF	US0045843	US0046628	S-0457
OK	City of Tulsa	MGT	2010	2003-2008 SF	US0120603	US0120985	S-0421
OR	City of Portland	BBC	2011	2005-2009 SF	US0009789	US0010561	S-0433
OR	Portland Development Commission	BBC	2011	2005-2009 SF	US0123155	US0123899	S-0432
OR	The Port of Portland	CHA	2018	2012-2016 SF	US0023025	US0023149	S-0640
OR	Oregon Department of Aviation	KEEN	2021	2015-2019 FF	US0046629	US0047322	S-2018
OR	Oregon Department of Transportation	KEEN	2016	2011-2014 FF	US0021934	US0022660	S-0564
OR	Oregon Department of Transportation	MGT	2011	2008-2010 SF	US0130106	US0130106	S-1458
PA	Pennsylvania Department of General Services	BBC	2018	2012-2016 SF	US0000825	US0001609	S-0598
PA	Pennsylvania Department of Transportation	BBC	2018	2012-2016 SF	US0000001	US0000824	S-0599
PA	City of Philadelphia	ECONSULT	2010	2009-2009 SF	US0079655	US0079808	S-0329
PA	City of Philadelphia	ECONSULT	2011	2010-2010 SF	US0079809	US0079997	S-0337
PA	City of Philadelphia	ECONSULT	2012	2011-2011 SF	US0079998	US0080150	S-0338

State	Subdivision	Authors	Publication Year	Study Period	Bates Start	Bates End	Call Nos.
PA	City of Philadelphia	ECONSULT	2013	2012-2012 SF	US0080151	US0080320	S-0349
PA	City of Philadelphia	ECONSULT	2014	2013-2013 SF	US0119643	US0119893	S-0351
PA	City of Philadelphia	ECONSULT	2015	2014-2014 SF	US0119894	US0120187	S-0352
PA	City of Philadelphia	ECONSULT	2016	2015-2015 SF	US0080321	US0080321	S-0359
PA	City of Philadelphia	ECONSULT	2017	2016-2016 SF	US0009630	US0009696	S-2019
PA	City of Philadelphia	ECONSULT	2019	2018-2018 SF	US0009697	US0009788	S-2021
PA	City of Philadelphia	MILLER3	2020	2019-2019 SF	US0047323	US0047511	S-2022
RI	State of Rhode Island	MTA	2021	2014-2017 SF	US0119379	US0119642	S-2038
TN	Metropolitan Nashville Airport Authority	CHA	2015	2008-2012 CY	US0018411	US0018430	S-0537
TN	City of Chattanooga	GSPC	2020	2014-2018 SF	US0033652	US0033964	S-2033
TN	City of Memphis	GSPC	2010	2003-2007 SF	US0079188	US0079462	S-0333 001
TN	City of Memphis	GSPC	2016	2010-2014 SF	US0039159	US0039491	S-0555
TN	Metro Nashville Government	GSPC	2018	2013-2017 SF	US0127650	US0128032	S-0606
TN	Metro Nashville Government	GSPC	2017	2014-2016 SF	US0136843	US0136909	S-2037
TN	Memphis Light, Gas, and Water Division	MGT	2012	2006-2010 CY	US0017871	US0018410	S-0561
TN	Shelby County Schools Board of Education	MGT	2017	2012-2016 SF	US0026929	US0027057	S-0593
TN	Shelby County	MTA	2016	2012-2014 CY	US0027058	US0027343	S-0543
TN	Memphis-Shelby County Airport Authority	NERA	2013	2006-2011 CY	US0038693	US0039158	S-0528
TX	City of Fort Worth	CHA	2020	2013-2018 SF	US0047512	US0047695	S-0642
TX	Dallas County	CHA	2015	2010-2013 CY	US0080663	US0080799	S-0542
TX	Dallas Fort Worth International Airport	CHA	2019	2012-2017 CY	US0080800	US0081015	S-0624
TX	Harris County	CHA	2020	2016-2018 SF	US0082109	US0082291	S-0634
TX	Parkland Health and Hospital System	CHA	2016	2011-2013 CY	US0134239	US0134382	S-2040
TX	Texas Department of Transportation	CHA	2019	2012-2016 CY	US0030009	US0030252	S-0629
TX	City of Dallas	MGT	2020	2014-2018 SF	US0047696	US0048045	S-2023
TX	San Antonio Water System	MGT	2015	2011-2013 CY	US0025101	US0025470	S-0568
TX	State of Texas	MGT	2010	2006-2008 SF	US0087026	US0087132	S-0498
TX	Bexar County	MTA	2011	2007-2009 SF	US0033034	US0033349	S-0502 002
TX	City of Arlington & Dallas-Fort Worth Intl. Airport	MTA	2010	2003-2007 SF	US0035430	US0035635	S-0364_002 & S-0364_004
TX	Metro. Transit Auth. of Harris County (Metro)	MTA	2021	2014-2018 SF	US0090698	US0090988	S-0654
TX	Austin Independent School District	NERA	2015	2009-2013 SF	US0089604	US0089968	S-0548
TX	City of Austin	NERA	2017	2008-2013 SF	US0136119	US0136831	S-0546 002
TX	City of Houston	NERA	2012	2005-2010 SF	US0008016	US0008310	S-0459
TX	City of San Antonio	NERA	2015	2011-2013 CY	US0024644	US0025100	S-0545
TX	Travis County	NERA	2016	2009-2013 SF	US0030253	US0030640	S-0547
TX	Corpus Christi Regional Transportation Authority	TXAMCC	2016	2015-2015 CY	US0035316	US0035429	S-0565
VA	City of Virginia Beach	BBC	2019	2013-2017 SF	US0001610	US0002108	S-0601
VA	Commonwealth of Virginia	BBC	2021	2015-2019 SF	US0048300	US0049107	S-0638
VA	City of Hampton and Hampton City Schools	MGT	2014	2008-2012 SF	US0013847	US0013863	S-0562

State	Subdivision	Authors	Publication Year	Study Period	Bates Start	Bates End	Call Nos.
VA	City of Portsmouth	MGT	2015	2009-2013 SF	US0091196	US0091517	S-0512
VA	Commonwealth of Virginia	MGT	2011	2006-2009 SF	US0030641	US0031065	S-0499
VA	Portsmouth Public Schools	MGT	2011	2006-2010 SF	US0023749	US0024089	S-0475
WA	Port of Seattle	BBC	2014	2010-2013 CY	US0023150	US0023748	S-0533
WA	Sound Transit	BBC	2013	2008-2011 CY	US0027344	US0027959	S-0532
WA	Sound Transit	BBC	2020	2016-2019 CY	US0089173	US0089358	S-2032
WA	Washington State Department of Transportation	BBC	2013	2009-2011 SF	US0091518	US0092195	S-0507
WA	Port of Seattle	CHA	2019	2012-2016 SF	US0049108	US0049120	S-2027
WA	State of Washington Department of Transportation	CHA	2017	2012-2015 FF	US0031280	US0031424	S-0583
WA	Washington State	CHA	2019	2012-2016 SF	US0029777	US0030008	S-0628
WA	Washington State Department of Transportation	CHA	2019	2012-2016 SF	US0031066	US0031279	S-0627
WA	City of Tacoma	GSPC	2018	2012-2016 SF	US0010684	US0011039	S-2026
WI	City of Madison	KEEN	2015	2008-2013 CY	US0016377	US0016857	S-0522

Note: (1) Author abbreviations are as follows: BBC-BBC Research & Consulting; CHA-Colette Holt & Associates; Econsult-Econsult Corporation; GSPC-Griffin & Strong, P.C.; KEEN-Keen Independent Research, LLC; MGT-MGT of America; MTA-Mason Tillman Associates, Ltd.; NERA-NERA Economic Consulting; ROSALES-Rosales Business Partners, LLC; RWC-The Roy Wilkins Center for Human Relations and Social Justice at the University of Minnesota; TXAMCC-South Texas Economic Development Center, Texas A&M Corpus Christi; (2) Study Period abbreviations are CY-Calendar Year, SF-State Fiscal Year, FF, Federal Fiscal Year.

D. Findings

In reviewing the evidence from these studies, I sought to establish whether disparities continue to exist in the utilization of minority-owned businesses in public contracting relative to their availability in U.S. markets, and the evidence overwhelmingly indicates that they do.

Each study from Table 2.1 is different. They were prepared by different authors, for different government entities, in different parts of the country, with differing levels of resources. They examined different periods of time and employed a variety of methodologies for estimating availability and utilization, as well as for gathering anecdotal information.³⁶

Despite their substantial differences, there are striking similarities. Foremost among these is that large, adverse, and statistically significant disparities are found to exist for minority businesses in the great majority of cases throughout the United States, in the economy as a whole, and in each major procurement category and industry sector.

Table 2.2 shows this result clearly. For example, the first five rows in column (6) document that for minorities as a group across all procurement categories combined, 80 percent of the disparity indexes from the studies were adverse (*i.e.*, less than 100) and 74 percent were large and adverse (*i.e.*, less than or equal to 80 or four-fifths).³⁷ Of the 74 percent of disparity indexes that were considered large and adverse, the mean (average) disparity index value was just 25, and the median value was just 18.³⁸ These findings are derived from 4,327 distinct disparity indexes.

In other words, 4 out of 5 disparities for minority-owned businesses across all procurement categories are adverse, 3 out of 4 are large and adverse, and minority-owned businesses facing large adverse disparities tended to be utilized at less than one-fifth to just one-quarter of their availability.

The first five rows of Table 2.2 in columns (1) through (5) document similar results when the data are disaggregated into major procurement categories. The fraction of disparities that are adverse varies from 78 percent to 85 percent. The fraction of disparities that are large and adverse varies from 72 percent to 81 percent. The mean disparity index value for large adverse disparities varies from 21 percent to 26 percent, and the median ranges from 14 to 21.

³⁶ A detailed discussion of the differences in methods employed by different study authors is provided in Wainwright and Holt (2010), pp. 29-53.

³⁷ A disparity of less than 80% (or four-fifths) is generally regarded by the federal government as evidence of adverse impact. This is known as the “four-fifths rule.” See 29 C.F.R. § 1607.4 (D).

³⁸ The median is the middle value of a distribution, where half the values are smaller and half the values are larger.

The succeeding four sections in Table 2.2 document similar results when minorities are disaggregated into more detailed race and ethnicity categories. For example:

- For Blacks across all procurement categories combined (column 6), 84 percent of the disparity indexes were adverse and 80 percent were large and adverse. Of the 80 percent that were large and adverse, the mean disparity index value was just 18, and the median was just 8.
- For Hispanics, 82 percent of the disparity indexes were adverse and 78 percent were large and adverse. Of the 78 percent that were large and adverse, the mean disparity index value was just 15, and the median was just 1.
- For Asians, 78 percent of the disparity indexes were adverse and 74 percent were large and adverse. Of the 74 percent of disparity indexes that were large and adverse, the mean disparity index value was just 15, and the median was just 1.
- For Native Americans, 85 percent of the disparity indexes were adverse and 83 percent were large and adverse. Of the 83 percent of disparity indexes that were large and adverse, the mean disparity index value was just 9, and the median was zero.

In stark contrast, the corresponding figures for non-minority males, in the last 5 rows of Table 2.2, show just 19 percent of disparity indexes below 100, and only 7 percent of these would be considered large and adverse. Of the 7 percent of disparity indexes that were large and adverse, the mean disparity index value was 41, and the median was 48.

Tables 2.3, 2.4 and 2.5 provide corresponding findings for those disparity indexes calculated for different levels of prime contracting or subcontracting.³⁹ Compared to Table 2.2, overall levels of disparity are somewhat more severe when only prime contracting is examined (Table 2.3); somewhat less severe when subcontracting alone is examined (Table 2.4), and similar when both levels are included (Table 2.5). Regardless of which contracting level is examined, however, the general conclusions of large, widespread, and adverse disparities are the same as for Table 2.2.

These general results also persist even when the analysis is restricted to just the newest studies in the database. Table 2.6 shows the same information as in Table 2.2 but only for those studies published between 2017 and 2021. Once again in column (6) we see adverse disparities in 84 percent of overall cases, large and adverse disparities in 77 percent of overall cases, a mean level of disparity for those indexes that are large and adverse of 26, and a median level of 20. For non-minority males, on the other hand, only 14 percent of disparities are adverse, and only 4 percent are large. The mean value is 41 and the median

³⁹ Different disparity studies calculate utilization statistics, availability statistics, and disparity indexes at different contracting levels. In some cases, prime contracts and prime contractors are examined separately from subcontracts and subcontractors. In other cases, prime contracts and subcontracts are examined together. *See also*, Section II.B.4, *supra*.

is 51. Although there is variation, these general findings of widespread large and adverse disparities are documented in all procurement categories and for all minority groups.

When the analysis is restricted to those studies for which statistical significance testing was conducted on the disparity indexes, we find there are still far more minority businesses than non-minority male businesses facing large adverse and statistically significant disparities. Table 2.7 shows, for example, that 56 percent of statistically significant disparities for minorities were adverse, compared to just 5 percent for non-minority males, and that large, adverse, and statistically significant disparities were observed for 55 percent of minorities but only 3 percent of non-minority males.

Finally, we also observe similar patterns of disparities in those industry segments that are relevant to the Plaintiff in this matter. Table 2.8 shows this for all of the NAICS codes relevant to the Plaintiff⁴⁰ for which there were results in the database.⁴¹

⁴⁰ In its complaint, the Plaintiff describes the industries in which it competes for contracts with the USDA as “administrative and/or technical support” services. (*See* *Ultima Services Corp. v. U.S. Dept. of Agriculture*, et al, 2020, pp. 2, 7, 8). In addition, the Performance Work Statement describes the Administrative Support Services Indefinite Delivery-Indefinite Quantity contract at issue in this matter (USDA NRCS, n.d., pp. 2-3 and Appendix A) (Bates US0052004-US0052027). *See* Section IV.C.1, below, for a discussion of the corresponding NAICS codes relevant to these industries.

⁴¹ Only the NERA studies contained disparity results for these exact NAICS categories.

Table 2.2. Extent of Large, Adverse Disparities in Studies Published Between 2010-2021

	Construction	AECRS	Professional Services	General Services	CSE	Overall
	(1)	(2)	(3)	(4)	(5)	(6)
Minority						
Percent LT 100	81%	78%	85%	82%	85%	80%
Percent LTE 80	75%	72%	81%	76%	81%	74%
Mean Disparity LTE 80	26	26	21	24	21	25
Median Disparity LTE 80	17	21	14	16	14	18
No. Observations	1,468	1,143	432	786	771	4,327
Black						
Percent LT 100	87%	82%	88%	82%	85%	84%
Percent LTE 80	83%	79%	86%	79%	82%	80%
Mean Disparity LTE 80	16	16	16	19	15	18
Median Disparity LTE 80	6	6	8	9	3	8
No. Observations	1,439	1,138	427	775	760	4,264
Hispanic						
Percent LT 100	80%	81%	86%	85%	87%	82%
Percent LTE 80	76%	76%	83%	84%	85%	78%
Mean Disparity LTE 80	18	17	11	11	10	15
Median Disparity LTE 80	2	0	0	0	0	1
No. Observations	1,430	1,097	421	776	740	4,185
Asian						
Percent LT 100	82%	76%	81%	82%	82%	78%
Percent LTE 80	78%	72%	77%	78%	79%	74%
Mean Disparity LTE 80	13	16	13	12	13	15
Median Disparity LTE 80	0	1	1	1	0	1
No. Observations	1,348	1,121	414	742	736	4,102
Native American						
Percent LT 100	82%	86%	92%	90%	95%	85%
Percent LTE 80	80%	84%	92%	89%	93%	83%
Mean Disparity LTE 80	11	11	7	5	3	9
Median Disparity LTE 80	0	0	0	0	0	0
No. Observations	1,354	940	353	706	629	3,752
Non-minority male						
Percent LT 100	21%	23%	13%	16%	16%	19%
Percent LTE 80	7%	8%	6%	6%	9%	7%
Mean Disparity LTE 80	36	43	41	45	39	41
Median Disparity LTE 80	45	51	39	46	46	48
No. Observations	1,487	1,156	431	787	773	4,392

Source: Author's calculations from the studies in Table 2.1. Notes: "AECRS" stands for Architecture, engineering and construction-related professional services. "CSE" stands for "Commodities, supplies, and equipment." "LT" stands for "Less than." "LTE" stands for "Less than or equal to." "No. Observations" is the total number of disparity indexes used as inputs in any given category.

Table 2.3. Extent of Large, Adverse Disparities in Studies Published Between 2010-2021, Prime Contractors Only

	Construction	AECRS	Professional Services	General Services	CSE	Overall
	(1)	(2)	(3)	(4)	(5)	(6)
Minority						
Percent LT 100	91%	88%	95%	88%	82%	88%
Percent LTE 80	87%	84%	92%	83%	79%	84%
Mean Disparity LTE 80	16	18	17	25	24	20
Median Disparity LTE 80	6	7	10	16	21	11
No. Observations	452	422	237	291	297	1,569
Black						
Percent LT 100	98%	88%	95%	83%	78%	88%
Percent LTE 80	97%	87%	94%	80%	74%	86%
Mean Disparity LTE 80	10	12	14	21	20	15
Median Disparity LTE 80	2	2	8	11	9	5
No. Observations	434	415	233	287	293	1,528
Hispanic						
Percent LT 100	87%	91%	94%	92%	89%	89%
Percent LTE 80	85%	88%	92%	92%	87%	88%
Mean Disparity LTE 80	11	10	8	10	12	11
Median Disparity LTE 80	0	0	0	1	1	0
No. Observations	426	394	231	288	271	1,474
Asian						
Percent LT 100	89%	90%	93%	83%	79%	85%
Percent LTE 80	88%	87%	90%	79%	76%	83%
Mean Disparity LTE 80	9	12	12	15	17	13
Median Disparity LTE 80	0	0	0	3	6	0
No. Observations	374	403	220	262	279	1,411
Native American						
Percent LT 100	90%	89%	93%	82%	89%	88%
Percent LTE 80	89%	88%	93%	79%	86%	86%
Mean Disparity LTE 80	9	8	6	10	7	8
Median Disparity LTE 80	0	0	0	0	0	0
No. Observations	395	303	183	250	201	1,230
Non-minority male						
Percent LT 100	12%	13%	5%	11%	16%	13%
Percent LTE 80	4%	5%	2%	1%	5%	4%
Mean Disparity LTE 80	45	47	43	36	41	44
Median Disparity LTE 80	58	55	53	44	57	56
No. Observations	471	430	238	293	302	1,612

Source and Notes: See Table 2.2.

Table 2.4. Extent of Large, Adverse Disparities in Studies Published Between 2010-2021, Subcontractors Only

	Construction	AECRS	Professional Services	General Services	CSE	Overall
	(1)	(2)	(3)	(4)	(5)	(6)
Minority						
Percent LT 100	74%	70%	58%	64%	82%	71%
Percent LTE 80	67%	62%	55%	64%	82%	65%
Mean Disparity LTE 80	23	24	16	7	10	21
Median Disparity LTE 80	11	10	0	0	0	7
No. Observations	399	182	64	33	38	677
Black						
Percent LT 100	83%	78%	67%	64%	81%	78%
Percent LTE 80	80%	74%	64%	64%	81%	75%
Mean Disparity LTE 80	15	13	11	8	8	14
Median Disparity LTE 80	2	0	0	0	0	0
No. Observations	392	188	64	33	37	674
Hispanic						
Percent LT 100	81%	73%	83%	94%	97%	80%
Percent LTE 80	77%	67%	81%	88%	92%	76%
Mean Disparity LTE 80	10	14	6	2	4	10
Median Disparity LTE 80	0	0	0	0	0	0
No. Observations	393	170	64	33	38	658
Asian						
Percent LT 100	82%	69%	68%	91%	92%	77%
Percent LTE 80	77%	67%	66%	91%	92%	74%
Mean Disparity LTE 80	9	17	6	2	6	10
Median Disparity LTE 80	0	0	0	0	0	0
No. Observations	368	186	65	33	36	649
Native American						
Percent LT 100	82%	82%	95%	97%	94%	84%
Percent LTE 80	81%	80%	95%	97%	94%	83%
Mean Disparity LTE 80	7	5	3	2	0	6
Median Disparity LTE 80	0	0	0	0	0	0
No. Observations	380	146	62	32	36	612
Non-minority male						
Percent LT 100	35%	43%	49%	44%	58%	40%
Percent LTE 80	15%	23%	32%	31%	53%	21%
Mean Disparity LTE 80	29	38	37	38	16	32
Median Disparity LTE 80	16	41	35	38	0	23
No. Observations	399	188	63	32	36	680

Source and Notes: See Table 2.2.

Table 2.5. Extent of Large, Adverse Disparities in Studies Published Between 2010-2021, Prime Contractors and Subcontractors

	Construction	AECRS	Professional Services	General Services	CSE	Overall
	(1)	(2)	(3)	(4)	(5)	(6)
Minority						
Percent LT 100	79%	72%	80%	79%	86%	78%
Percent LTE 80	71%	65%	72%	72%	81%	70%
Mean Disparity LTE 80	36	36	32	24	20	31
Median Disparity LTE 80	34	35	29	17	12	28
No. Observations	617	539	131	462	436	2,081
Black						
Percent LT 100	82%	79%	84%	82%	90%	82%
Percent LTE 80	76%	75%	82%	79%	87%	78%
Mean Disparity LTE 80	23	21	22	19	13	22
Median Disparity LTE 80	19	16	14	9	0	15
No. Observations	613	535	130	455	430	2,062
Hispanic						
Percent LT 100	75%	76%	72%	80%	85%	78%
Percent LTE 80	69%	71%	68%	78%	83%	73%
Mean Disparity LTE 80	31	25	22	12	9	21
Median Disparity LTE 80	26	13	7	0	0	9
No. Observations	611	533	126	455	431	2,053
Asian						
Percent LT 100	78%	68%	67%	80%	82%	73%
Percent LTE 80	74%	62%	61%	77%	80%	68%
Mean Disparity LTE 80	19	21	21	11	10	18
Median Disparity LTE 80	6	10	14	1	0	8
No. Observations	606	532	129	447	421	2,042
Native American						
Percent LT 100	76%	86%	89%	95%	98%	83%
Percent LTE 80	72%	82%	88%	94%	97%	81%
Mean Disparity LTE 80	17	14	12	4	2	10
Median Disparity LTE 80	1	0	0	0	0	0
No. Observations	579	491	108	424	392	1,910
Non-minority male						
Percent LT 100	20%	25%	10%	17%	12%	17%
Percent LTE 80	3%	5%	2%	7%	8%	5%
Mean Disparity LTE 80	47	50	74	47	50	51
Median Disparity LTE 80	58	65	74	48	52	59
No. Observations	617	538	130	462	435	2,100

Source and Notes: See Table 2.2.

Table 2.6. Extent of Large, Adverse Disparities in Studies Published Between 2017-2021

	Construction	AECRS	Professional Services	General Services	CSE	Overall
	(1)	(2)	(3)	(4)	(5)	(6)
Minority						
Percent LT 100	87%	81%	90%	88%	89%	84%
Percent LTE 80	81%	76%	86%	83%	85%	77%
Mean Disparity LTE 80	29	24	19	25	22	26
Median Disparity LTE 80	23	15	9	21	15	20
No. Observations	346	366	174	205	193	1,211
Black						
Percent LT 100	92%	88%	94%	91%	96%	90%
Percent LTE 80	87%	86%	94%	88%	92%	86%
Mean Disparity LTE 80	19	15	13	21	16	19
Median Disparity LTE 80	10	4	4	14	6	10
No. Observations	342	362	173	203	191	1,198
Hispanic						
Percent LT 100	77%	85%	92%	80%	82%	81%
Percent LTE 80	72%	83%	91%	78%	81%	77%
Mean Disparity LTE 80	25	19	12	12	12	19
Median Disparity LTE 80	15	2	0	1	2	5
No. Observations	341	354	169	201	188	1,179
Asian						
Percent LT 100	77%	72%	76%	83%	79%	73%
Percent LTE 80	73%	68%	72%	79%	78%	69%
Mean Disparity LTE 80	18	17	13	15	14	17
Median Disparity LTE 80	2	2	2	6	6	5
No. Observations	333	348	172	197	183	1,165
Native American						
Percent LT 100	88%	89%	95%	92%	97%	88%
Percent LTE 80	85%	86%	95%	92%	97%	86%
Mean Disparity LTE 80	17	11	7	8	4	11
Median Disparity LTE 80	5	0	0	0	0	0
No. Observations	313	308	151	178	171	1,073
Non-minority male						
Percent LT 100	9%	16%	5%	12%	10%	14%
Percent LTE 80	3%	5%	2%	3%	6%	4%
Mean Disparity LTE 80	39	44	58	35	23	41
Median Disparity LTE 80	45	55	67	33	2	51
No. Observations	349	368	176	207	195	1,224

Source and Notes: See Table 2.2.

Table 2.7. Extent of Large, Adverse Disparities in Studies Published Between 2010-2021, Results with Statistical Significance of 10 Percent or Better, Overall Procurement

	Minority	Black	Hispanic	Asian	Native American	Non-minority male
	(1)	(2)	(3)	(4)	(5)	(6)
Percent LT 100	56%	53%	46%	48%	44%	5%
Percent LTE 80	55%	53%	46%	47%	44%	3%
Mean Disparity LTE 80	25	19	13	13	6	43
Median Disparity LTE 80	21	15	2	6	0	47
No. Observations	940	1,007	925	911	912	881

Source and Notes: See Table 2.2.

Table 2.8. Extent of Large, Adverse Disparities in Studies Published Between 2010-2021, Plaintiff's Industry Segments

	Minority	Black	Hispanic	Asian	Native American	Non-minority male
	(1)	(2)	(3)	(4)	(5)	(6)
NAICS 541 (Professional, Scientific, and Technical Services)						
Percent LT 100	61%	83%	78%	58%	83%	17%
Percent LTE 80	61%	83%	75%	47%	83%	6%
Mean Disparity LTE 80	32	19	7	29	5	60
Median Disparity LTE 80	28	6	3	27	0	60
No. Observations	36	36	36	36	36	36
NAICS 5416 (Management, Scientific, and Technical Consulting Services)						
Percent LT 100	66%	72%	79%	88%	97%	46%
Percent LTE 80	61%	69%	77%	87%	97%	37%
Mean Disparity LTE 80	17	13	6	13	0	31
Median Disparity LTE 80	5	0	0	0	0	32
No. Observations	229	227	229	221	207	229
NAICS 561						
Percent LT 100	67%	61%	89%	94%	94%	31%
Percent LTE 80	58%	58%	89%	94%	94%	19%
Mean Disparity LTE 80	16	17	11	6	1	35
Median Disparity LTE 80	2	4	0	0	0	19
No. Observations	36	36	36	36	36	36
NAICS 5611 (Office Administrative Services)						
Percent LT 100	61%	66%	93%	100%	100%	38%
Percent LTE 80	61%	66%	93%	100%	100%	38%
Mean Disparity LTE 80	0	1	0	0	0	2
Median Disparity LTE 80	0	0	0	0	0	0
No. Observations	44	44	30	36	30	45
NAICS 5613 (Employment Services)						
Percent LT 100	54%	55%	89%	97%	98%	61%
Percent LTE 80	53%	53%	89%	97%	98%	54%
Mean Disparity LTE 80	10	6	2	1	1	17
Median Disparity LTE 80	0	0	0	0	0	8
No. Observations	125	125	123	119	123	127

Source: Author's calculations from the NERA studies in Table 2.1. Notes: See U.S. Office of Management and Budget (2017) for detailed descriptions of individual NAICS codes.

E. Conclusions

In my recent testimony before the U.S. House Committee on Transportation and Infrastructure, I noted that:

“According to my records, there are at least another 150 disparity studies that have been completed since I finished my work for USDOJ in 2013. There is no doubt in my mind that were I to conduct a comparable analysis on these latest studies, I would find similar results—large and adverse disparities that continue to face M/WBEs throughout the country.”

Having now had the opportunity to conduct such an analysis, I am disappointed, but not surprised, to learn that I was correct. Judging from the 205 studies produced since 2010, we observe large, adverse, and often statistically significant disparities facing minority-owned business enterprises throughout the United States and across all government contracting and procurement categories and among all types of minority-owned businesses. This indicates that in the overwhelming number of public procurement markets, minority-owned businesses are underutilized based on their availability.

In the final two sections of my report, I consider first, whether consistent findings of disparity are observed in two important government surveys of minority business and second, whether statistical regression analysis incorporating numerous potentially race-neutral variables can explain the disparities observed above.

III. There is Strong Evidence of Disparities Between Utilization and Availability in Aggregate U.S. Business Enterprise Activity

A key rationale for the advent of public sector policies such as the SBA 8(a) Program was the federal government's desire to mitigate its own passive participation in private sector discrimination in business enterprise activity.⁴² Therefore, it is important to examine the available evidence regarding how minority-owned businesses fare in the overall U.S. economy, to determine whether consistent disparities are observed in aggregate data. In order to do this, I present evidence from the U.S. Census Bureau's only past and present data collection efforts dedicated to MBEs.

The *Survey of Business Owners and Self-Employed Persons* (SBO) collected data on the number, sales, employment, and payrolls of businesses owned by minorities, women, and non-minority males. This survey was conducted every five years from 1972 to 2012 as part of the *Economic Census* program. Data from the 2012 SBO, the most recent available, were released in December 2015.⁴³

In mid-2018, the Census Bureau announced that the SBO would be discontinued and only partially replaced with a new survey called the *Annual Business Survey* (ABS).⁴⁴ Unfortunately, the ABS only counts firms with paid employees, as opposed to the SBO, which also counted nonemployer firms (often sole proprietorships and smaller corporations).⁴⁵ Data from the 2017 ABS were released in May 2020.⁴⁶ The SBO and ABS cover women and five groups of minorities: (1) Blacks, (2) Hispanics, (3) Asians, (4) Native Hawaiians and Other Pacific Islanders, and (5) American Indians and Alaskan Natives. Comparative information for non-minority male-owned firms is also included.⁴⁷

The SBO and ABS contain a wealth of information on the character of minority business enterprise in the U.S as a whole as well as more limited information for individual states and some sub-state divisions. Regardless of whether the SBO data or the ABS data is

⁴² *City of Richmond v. J. A. Croson Co.*, 488 U.S. 469, 492 (“Thus, if the city could show that it had essentially become a ‘passive participant’ in a system of racial exclusion practiced by elements of the local construction industry, we think it clear that the city could take affirmative steps to dismantle such a system.”).

⁴³ U.S. Census Bureau (2018a, 2018b, 2018c, 2018d).

⁴⁴ U.S. Census Bureau (2018e).

⁴⁵ U.S. Census Bureau (2018f). In 2012, according to the SBO, there were about 5.1 million firms with paid employees and more than 22 million nonemployer firms.

⁴⁶ U.S. Census Bureau (2020c). In the American Community Survey data, discussed in Section IV, the unit of analysis is the business owner, or self-employed person. In the SBO and ABS data, the unit of analysis is the business itself rather than the business owner. Also, the unit of analysis in the SBO and ABS is the firm, rather than the individual establishment, unlike most other components of the *Economic Census*.

⁴⁷ The race and ethnicity categories used in the SBO and ABS differ in some respects from those used in the SBA 8(a) Business Development Program. In the SBO and ABS, Native Hawaiians are grouped with Pacific Islanders, rather than with Native Americans. Also, Subcontinent Asians are grouped with Asians and Pacific Islanders, rather than classified separately.

examined, I found a consistent pattern of large, adverse, and statistically significant disparities in the performance of minority-owned businesses.

In the remainder of this section, I present national evidence from the 2012 SBO and the 2017 ABS for the economy as a whole, as well as for the major procurement categories of construction, professional services, general services, and CSE, including for those industry sectors that correspond with the type of work identified by the Plaintiff as at issue in this lawsuit—NAICS 54 (“Professional, Scientific, and Technical Services”) and NAICS 56 (“Administrative and Support and Waste Management and Remediation Services”).

A. Results from the 2012 Survey of Business Owners

1. Economy-Wide Results

I begin with the 2012 SBO—the most recent and final data from this important survey. Table 3.1 contains data for the U.S. as a whole and economy-wide (*i.e.*, all industries combined). Panel A in this table summarizes the SBO results for each race grouping. For example, Panel A shows a total of 27.18 million firms in the U.S. in 2012 (column 1) with overall sales and receipts of \$11.964 trillion (column 2). Of these 27.18 million firms, 5.14 million had one or more employees (column 3) and these 5.14 million firms had overall sales and receipts of \$10.965 trillion (column 4). Column (5) shows a total of 56.059 million employees on the payroll of these 5.14 million firms and a total annual payroll expense of \$2.096 trillion (column 6).

The remaining rows in Panel A provide comparable statistics for non-minority male-owned and minority-owned firms. For example, Table 3.1 shows that there were 2.6 million Black-owned firms counted in the SBO, and that these 2.6 million firms registered \$150.2 billion in sales and receipts. It also shows that 109,137 of these Black-owned firms had one or more employees, and that they employed a total of 975,052 workers with an annual payroll total of \$27.69 billion.

Panel B in Table 3.1 converts the figures in Panel A to percentage distributions within each column. For example, Column (1) in Panel B of Table 3.1 shows that Black-owned firms were 9.51 percent of all firms in the U.S. Additionally, 12.16 percent of firms were Hispanic-owned, 7.06 percent were Asian-owned, 0.20 percent were Native Hawaiian- and other Pacific Islander-owned, and 1.0 percent were American Indian- and Alaska Native-owned.

Column (2) in Panel B provides the same percentage distribution for overall sales and receipts. Table 3.1, for example, shows that non-minority males owned 45.18 percent of all firms and earned 73.45 percent of all sales and receipts. In contrast:

- Although Blacks owned 9.51 percent of all firms in the U.S. in 2012, they earned only 1.26 percent of all sales and receipts.
- Although Hispanics owned 12.16 percent of all firms, they earned only 3.96 percent of all sales and receipts.

- Although Asians owned 7.06 percent of all firms, they earned only 5.85 percent of all sales and receipts.
- Although Native Hawaiians and other Pacific Islanders owned 0.20 percent of all firms, they earned only 0.07 percent of all sales and receipts.
- Although American Indians and Alaska Natives owned 1.0 percent of all firms, they earned only 0.32 percent of all sales and receipts.

These disparities between the availability and utilization of minority-owned firms can be viewed directly from the disparity indexes in Panel C of Table 3.1. For example, Panel C shows that Black-owned firms in 2012 received just 13.2 percent of what would be expected based on their availability in the market.⁴⁸ For Hispanics, the figure was 32.55 percent. For Asians, the figure was 82.85 percent. For Native Hawaiians and other Pacific Islanders, the figure was 33.76 percent, and for American Indians and Alaska Natives, the figure was 32.33 percent. These disparities are all adverse and statistically significant. The disparities are all large (four-fifths or less for an unadjusted disparity⁴⁹) as well, with the exception of Asian-owned firms.

We can also compare sales and receipts per firm among all firms in 2012. In Table 3.1, for example, average per firm sales and receipts for non-minority male-owned firms was \$715.6 thousand.⁵⁰ In contrast:

- For Black-owned firms, average per firm sales and receipts was \$58.1 thousand. In other words, for every dollar of sales and receipts earned by non-minority male-owned firms, Black-owned firms received just 8 cents.
- For Hispanic-owned firms, average per firm sales and receipts was \$143.3 thousand. In other words, for every dollar of sales and receipts earned by non-minority male-owned firms, Hispanic-owned firms received just 20 cents.
- For Asian-owned firms, average per firm sales and receipts was \$364.7 thousand. In other words, for every dollar of sales and receipts earned by non-minority male-owned firms, Asian-owned firms received just 51 cents.
- For Native Hawaiian- and other Pacific Islander-owned firms, average per firm sales and receipts was \$148.6 thousand. In other words, for every dollar of sales and receipts earned by non-minority male-owned firms, Native Hawaiian- and other Pacific Islander-owned firms received just 21 cents.

⁴⁸ The disparity index is derived by dividing the share of sales and receipts from Panel B column (2) by the share of firms in Panel B column (1) and multiplying the result by 100.

⁴⁹ By “unadjusted” I mean disparity measures that are not already “adjusted” for differences among businesses or business owners in other demographic or capacity factors. Section IV, *infra*, discusses the impact of such adjustments on measures of disparity.

⁵⁰ Average per firm sales and receipts is derived by dividing the value for non-minority males in Panel A, column (2) by the corresponding value in Panel A, column (1).

- For American Indian- and Alaska Native-owned firms, average per firm sales and receipts was \$142.3 thousand. In other words, for every dollar of sales and receipts earned by non-minority male-owned firms, American Indian- and Alaska Native-owned firms received just 20 cents.

These disparities are all large, adverse, and statistically significant.

Turning to employer firms (*i.e.*, firms with one or more paid employees), we see from column (3) in Table 3.1, that although non-minority male-owned firms were 57.11 percent of all employer firms, they accounted for 74.98 percent of all employer firm sales and receipts. In contrast:

- Although Blacks owned 2.12 percent of all employer firms in the U.S. in 2012, they earned only 0.94 percent of all sales and receipts.
- Although Hispanics owned 5.6 percent of all employer firms, they earned only 3.47 percent of all sales and receipts.
- Although Asians owned 9.37 percent of all employer firms, they earned only 5.72 percent of all sales and receipts.
- Although Native Hawaiians and other Pacific Islanders owned 0.09 percent of all employer firms, they earned only 0.06 percent of all sales and receipts.
- Although American Indians and Alaska Natives owned 0.51 percent of all employer firms, they earned only 0.29 percent of all sales and receipts.

The economy-wide employer firm disparity indexes for 2012 appear in Panel C of Table 3.1. Panel C shows that Black-owned employer firms in 2012 received just 44.4 percent of what would be expected based on their availability in the market. For Hispanics, the figure was 61.91 percent. For Asians, the figure was 61.11 percent. For Native Hawaiians and other Pacific Islanders, the figure was 64.40 percent, and for American Indians and Alaska Natives, the figure was 56.64 percent. These disparities are all large, adverse, and statistically significant.

Considering average sales and receipts per firm among employer firms in 2012, Table 3.1 shows a figure of \$2.8 million for non-minority male-owned employer firms. In contrast:

- For Black-owned employer firms, average per firm sales and receipts was \$947.9 thousand. In other words, for every dollar of sales and receipts earned by non-minority male-owned firms, Black-owned firms received just 34 cents.
- For Hispanic-owned employer firms, average per firm sales and receipts was \$1.32 million. In other words, for every dollar of sales and receipts earned by non-minority male-owned firms, Hispanic-owned firms received just 47 cents.
- For Asian-owned employer firms, average per firm sales and receipts was \$1.3 million. In other words, for every dollar of sales and receipts earned by non-minority male-owned firms, Asian-owned firms received just 47 cents.

- For Native Hawaiian- and other Pacific Islander-owned employer firms, average per firm sales and receipts was \$1.37 million. In other words, for every dollar of sales and receipts earned by non-minority male-owned firms, Native Hawaiian- and other Pacific Islander-owned firms received just 49 cents.
- For American Indian- and Alaska Native-owned employer firms, average per firm sales and receipts was \$1.21 million. In other words, for every dollar of sales and receipts earned by non-minority male-owned firms, American Indian- and Alaska Native-owned firms received just 43 cents.

These disparities are all large, adverse, and statistically significant.

The problem of minority-owned firms selling and earning less has important consequences that ripple throughout the economy. Because these firms make less, they may have to pay their employees less. This compounds race disparities to the extent that minority-owned firms hire proportionately more minority employees. In addition, it reduces the wealth accruing to minorities (both business owners and employees alike) and thus hinders would-be minority entrepreneurs in their efforts to create and grow their own firms, thus reinforcing the negative consequences of social and economic disadvantage. Table 3.1 shows that average payroll per employee at non-minority male-owned employer firms in 2012 was \$40,573.⁵¹ In contrast:

- For Black-owned employer firms, average payroll per employee was just \$28,398. In other words, for every \$1 in wages earned by employees at non-minority male-owned firms, employees at Black-owned firms earned only 70 cents.
- For Hispanic-owned employer firms, average payroll per employee was just \$30,416. In other words, for every \$1 in wages earned by employees at non-minority male-owned firms, employees at Hispanic-owned firms earned only 75 cents.
- For Asian-owned employer firms, average payroll per employee was just \$30,942. In other words, for every \$1 in wages earned by employees at non-minority male-owned firms, employees at Asian-owned firms earned only 76 cents.
- For Native Hawaiian- and other Pacific Islander-owned employer firms, average payroll per employee was just \$36,681. In other words, for every \$1 in wages earned by employees at non-minority male-owned firms, employees at Native Hawaiian- and other Pacific Islander-owned firms earned just 90 cents.
- For American Indian- and Alaska Native-owned employer firms, average payroll per employee was just \$33,599. In other words, for every \$1 in wages earned by employees at non-minority male-owned firms, employees at American Indian- and Alaska Native-owned firms earned just 83 cents.

⁵¹ Average payroll per employee is derived by dividing the value in Panel A, column (6) by the corresponding value in Panel A, column (5).

These disparities are all adverse and statistically significant. For Blacks, Hispanics, and Asians, they are large as well.

Table 3.1. Disparity Indexes from the 2012 Survey of Business Owners, United States, All Industries

	Number of Firms	Sales and Receipts (\$000s)	Employer Firms	Sales and Receipts (\$000s)	Employees	Payroll (\$000s)
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A. Levels						
All Firms	27,179,380	11,964,077,871	5,136,203	10,964,584,749	56,058,563	2,096,442,212
Non-minority male	12,280,591	8,787,915,377	2,933,198	8,221,010,815	37,750,711	1,531,662,394
Black	2,584,403	150,203,163	109,137	103,451,510	975,052	27,689,957
Hispanic	3,305,873	473,635,944	287,501	379,994,999	2,329,553	70,855,704
Asian	1,917,902	699,492,422	481,026	627,532,399	3,572,577	110,543,615
Native Hawaiian & Pac. Islander	54,749	8,136,445	4,706	6,469,957	39,001	1,430,591
Amer. Indian & Alaska Native	272,919	38,838,125	26,179	31,654,165	208,178	6,994,509
Panel B. Column Percentages						
All Firms	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Non-minority male	45.18%	73.45%	57.11%	74.98%	67.34%	73.06%
Black	9.51%	1.26%	2.12%	0.94%	1.74%	1.32%
Hispanic	12.16%	3.96%	5.60%	3.47%	4.16%	3.38%
Asian	7.06%	5.85%	9.37%	5.72%	6.37%	5.27%
Native Hawaiian & Pac. Islander	0.20%	0.07%	0.09%	0.06%	0.07%	0.07%
Amer. Indian & Alaska Native	1.00%	0.32%	0.51%	0.29%	0.37%	0.33%
Panel C. Disparity Indexes						
	Column (2) ÷ (1)			(4) ÷ (3)	(5) ÷ ((3)	(6) ÷ (3)
All Firms	100.00			100.00	100.00	100.00
Non-minority male	162.56			131.29	117.92	127.93
Black	13.20			44.40	81.86	62.16
Hispanic	32.55			61.91	74.24	60.38
Asian	82.85			61.11	68.05	56.30
Native Hawaiian & Pac. Islander	33.76			64.40	75.93	74.48

Source: Author's calculations using 2012 SBO. Notes: (1) Figures are rounded. Rounding was performed subsequent to any mathematical calculations; (2) Excludes publicly owned, foreign-owned, and not-for-profit firms; (3) Totals for "All Firms" include firms that were equally non-minority/minority owned; (4) Statistically significant disparity indexes are italicized; (5) "n/a" indicates that data were not disclosed due to confidentiality or other publication restrictions.

2. Industry-Specific Results

Table 3.2 shows the 2012 SBO disparity ratio and its underlying firm and sales percentages for both all firms and employer firms.⁵² The top panel, for All Industries, replicates the results seen in Panels B and C in Table 3.1.

The remaining panels in Table 3.2 present results for 16 distinct industry sectors, grouped according to four major procurement categories. These are:

- Construction (NAICS 23);
- Professional Services (NAICS 54, 55 & 56);
- General Services (NAICS 48-49, 51, 52, 53, 61, 62, 71, 72 & 81); and
- CSE (NAICS 31-33, 42 & 44-45).

When the SBO survey results are disaggregated into major procurement categories and industry sectors, similar patterns of large, adverse, and statistically significant disparities are also observed in the vast majority of cases. Specifically:

- In the All Industries panel of Table 3.2, 100 percent of the disparity indexes are adverse (10 out of 10), 90 percent are large (9 out of 10), and 100 percent are statistically significant (10 out of 10).
- In the Construction (NAICS 23) panel, 90 percent of the disparity ratios are adverse, 90 percent are large, and 90 percent are statistically significant.
- In the Professional Services (NAICS 54) panel, 70 percent of the disparity ratios are adverse, 50 percent are large, and 90 percent are statistically significant.
- In the Professional Services (NAICS 55) panel, 80 percent of the disparity ratios are adverse, 60 percent are large, and 40 percent are statistically significant.
- In the Professional Services (NAICS 56) panel, 90 percent of the disparity ratios are adverse, 60 percent are large, and 60 percent are statistically significant.
- In the General Services (NAICS 48-49) panel, 100 percent of the disparity ratios are adverse, 100 percent are large, and 89 percent are statistically significant.

⁵² The all firm percentages in column (1) of Table 3.2 are comparable to the figures in Panel B, column (1) of Table 3.1. The all firm sales percentages in column (2) of Table 3.2 are comparable to the figures in Panel B, column (2) of Table 3.1. The employer firm percentages in column (3) of Table 3.2 are comparable to the figures in Panel B, column (3) of Table 3.1. The employer firm sales percentages in column (4) of Table 3.2 are comparable to the figures in Panel B, column (4) of Table 3.1. The all firms disparity ratios in column (5) of Table 3.2 are comparable to the figures in Panel C, column (2) of Table 3.1. Finally, the employer firms disparity ratios in column (6) of Table 3.2 are comparable to the figures in Panel C, column (4) of Table 3.1.

- In the General Services (NAICS 51) panel, 100 percent of the disparity ratios are adverse, 90 percent are large, and 100 percent are statistically significant.
- In the General Services (NAICS 52) panel, 100 percent of the disparity ratios are adverse, 100 percent are large, and 100 percent are statistically significant.
- In the General Services (NAICS 53) panel, 100 percent of the disparity ratios are adverse, 100 percent are large, and 100 percent are statistically significant.
- In the General Services (NAICS 61) panel, 100 percent of the disparity ratios are adverse, 67 percent are large, and 78 percent are statistically significant.
- In the General Services (NAICS 62) panel, 90 percent of the disparity ratios are adverse, 90 percent are large, and 100 percent are statistically significant.
- In the General Services (NAICS 71) panel, 80 percent of the disparity ratios are adverse, 50 percent are large, and 60 percent are statistically significant.
- In the General Services (NAICS 72) panel, 80 percent of the disparity ratios are adverse, 70 percent are large, and 90 percent are statistically significant.
- In the General Services (NAICS 81) panel, 100 percent of the disparity ratios are adverse, 78 percent are large, and 78 percent are statistically significant.
- In the CSE (NAICS 31-33) panel, 90 percent of the disparity ratios are adverse, 90 percent are large, and 90 percent are statistically significant.
- In the CSE (NAICS 42) panel, 100 percent of the disparity ratios are adverse, 100 percent are large, and 90 percent are statistically significant.
- In the CSE (NAICS 44-45) panel, 100 percent of the disparity ratios are adverse, 90 percent are large, and 90 percent are statistically significant.

These results are evident within each specific minority group as well. Specifically:

- For Blacks, 94 percent of the above disparity ratios are adverse (32 out of 34), 88 percent are large (30 out of 34), and 94 percent are statistically significant (32 out of 34).
- For Hispanics, 94 percent of the above disparity ratios are adverse, 88 percent are large, and 94 percent are statistically significant.
- For Asians, 88 percent of the above disparity ratios are adverse, 59 percent are large, and 85 percent are statistically significant.
- For Native Hawaiians and other Pacific Islanders, 88 percent of the above disparity ratios are adverse, 78 percent are large, and 66 percent are statistically significant.
- For American Indians and Alaska Natives, 97 percent of the above disparity ratios are adverse, 88 percent are large, and 79 percent are statistically significant.

Table 3.2. Percentage of Firms and Sales and Corresponding Disparity Ratios, All Firms and Employer Firms, United States, 2012

	Percentage of All Firms	Percentage of All Sales	Percentage of All Employers	Percentage of All Employer Sales	Disparity Ratio-All Firms	Disparity Ratio Employers
	(1)	(2)	(3)	(4)	(5)	(6)
All Industries						
Black	9.51	1.26	2.12	0.94	0.13***	0.44***
Hispanic	12.16	3.96	5.60	3.47	0.33***	0.62***
Asian	7.06	5.85	9.37	5.72	0.83***	0.61***
NHPI	0.20	0.07	0.09	0.06	0.34***	0.64***
AIAN	1.00	0.32	0.51	0.29	0.32***	0.57***
	27,179,380	11,964,077,871	5,136,203	10,964,584,749		
Construction						
Black	4.67	0.93	1.19	0.77	0.20***	0.65***
Hispanic	16.24	4.65	6.07	3.59	0.29***	0.59***
Asian	2.63	1.28	1.66	1.19	0.49***	0.72***
NHPI	0.19	0.13	0.11	0.12	0.66***	1.02
AIAN	1.23	0.62	0.76	0.57	0.50***	0.75***
	2,928,015	1,200,413,658	637,296	1,083,093,941		
Professional Services (NAICS 54)						
Black	5.35	1.79	1.85	1.52	0.33***	0.82***
Hispanic	7.19	3.82	3.95	3.45	0.53***	0.87***
Asian	7.16	7.72	6.79	7.90	1.08***	1.16***
NHPI	0.16	0.11	0.08	0.10	0.65***	1.28
AIAN	0.80	0.36	0.48	0.30	0.45***	0.61***
	3,868,657	877,237,881	748,444	742,626,210		
Professional Services (NAICS 55)						
Black	1.20	0.77	1.20	0.77	0.64*	0.64*
Hispanic	2.31	2.91	2.31	2.91	1.26	1.26
Asian	2.95	2.54	2.95	2.54	0.86	0.86
NHPI	0.05	0.02	0.05	0.02	0.41***	0.41***
AIAN	0.34	0.26	0.34	0.26	0.75	0.75
	16,312	58,916,087	16,312	58,916,087		
Professional Services (NAICS 56)						
Black	12.86	2.96	3.31	2.38	0.23***	0.72***
Hispanic	23.01	6.35	7.98	4.81	0.28***	0.60***
Asian	3.75	3.68	3.44	3.64	0.98	1.06
NHPI	0.28	0.11	0.09	0.09	0.38***	0.98
AIAN	1.27	0.64	0.64	0.60	0.51***	0.93
	2,292,895	417,900,103	316,316	377,522,132		
General Services (NAICS 48-49)						
Black	15.35	3.19	4.00	1.30	0.21***	0.32***
Hispanic	20.19	8.11	9.45	5.35	0.40***	0.57***
Asian	7.77	3.68	4.18	2.76	0.47***	0.66***
NHPI	0.21	0.14	0.14	n/a	0.67	n/a
AIAN	0.94	0.38	0.58	0.28	0.40***	0.48***
	1,204,092	384,210,425	161,862	316,174,682		

	Percentage of All Firms	Percentage of All Sales	Percentage of All Employers	Percentage of All Employer Sales	Disparity Ratio-All Firms	Disparity Ratio Employers
	(1)	(2)	(3)	(4)	(5)	(6)
General Services (NAICS 51)						
Black	7.54	1.16	1.58	0.99	0.15***	0.63***
Hispanic	8.03	1.90	3.73	1.64	0.24***	0.44***
Asian	6.10	4.77	5.18	4.64	0.78***	0.90*
NHPI	0.17	0.05	0.09	0.04	0.30***	0.51**
AIAN	0.92	0.21	0.46	0.19	0.23***	0.40***
	377,663	215,088,486	61,946	204,315,058		
General Services (NAICS 52)						
Black	4.74	0.85	2.02	0.71	0.18***	0.35***
Hispanic	6.02	1.79	4.02	1.48	0.30***	0.37***
Asian	5.23	2.26	3.59	1.79	0.43***	0.50***
NHPI	0.13	0.04	0.06	0.02	0.28***	0.31***
AIAN	0.67	0.21	0.58	0.16	0.31***	0.28***
	920,742	429,061,567	212,378	376,388,916		
General Services (NAICS 53)						
Black	3.02	0.98	1.11	0.75	0.32***	0.68***
Hispanic	5.53	2.74	3.95	2.05	0.49***	0.52***
Asian	5.79	4.34	4.73	3.15	0.75***	0.67***
NHPI	0.11	0.04	0.07	0.03	0.40***	0.42***
AIAN	0.42	0.20	0.35	0.18	0.47***	0.52***
	2,579,737	458,184,793	253,009	246,648,164		
General Services (NAICS 61)						
Black	10.46	3.15	2.91	2.23	0.30***	0.76***
Hispanic	8.31	3.91	3.94	3.37	0.47***	0.86*
Asian	6.63	6.07	10.00	5.94	0.92	0.59***
NHPI	0.20	0.08	0.16	n/a	0.37***	n/a
AIAN	1.15	0.53	0.49	0.46	0.46***	0.95
	644,290	50,165,519	54,424	42,240,448		
General Services (NAICS 62)						
Black	19.88	3.82	5.73	2.94	0.19***	0.51***
Hispanic	14.03	4.56	5.42	4.03	0.32***	0.74***
Asian	8.20	9.58	12.50	9.50	1.17***	0.76***
NHPI	0.27	0.07	0.10	0.06	0.27***	0.57*
AIAN	1.17	0.35	0.54	0.30	0.30***	0.55***
	2,479,990	635,156,474	559,533	575,266,041		
General Services (NAICS 71)						
Black	9.59	3.12	2.19	1.87	0.33***	0.86
Hispanic	7.84	3.27	2.72	2.30	0.42***	0.85**
Asian	4.23	2.49	2.78	2.00	0.59***	0.72*
NHPI	0.27	0.24	0.20	0.24	0.88	1.22
AIAN	1.23	0.57	0.33	0.47	0.46***	1.45
	1,296,039	118,949,215	86,393	91,003,931		
General Services (NAICS 72)						
Black	7.37	1.75	1.44	1.63	0.24***	1.13*
Hispanic	12.23	5.84	7.88	5.63	0.48***	0.72***
Asian	19.10	15.60	24.07	15.55	0.82***	0.65***
NHPI	0.18	0.07	0.09	0.07	0.41***	0.70
AIAN	0.70	0.22	0.30	0.20	0.31***	0.65***
	818,829	487,124,537	480,317	469,248,060		

	Percentage of All Firms	Percentage of All Sales	Percentage of All Employers	Percentage of All Employer Sales	Disparity Ratio-All Firms	Disparity Ratio Employers
	(1)	(2)	(3)	(4)	(5)	(6)
General Services (NAICS 81)						
Black	17.94	4.10	2.16	1.34	0.23***	0.62***
Hispanic	15.26	7.62	6.46	4.78	0.50***	0.74***
Asian	10.64	8.61	12.84	6.83	0.81***	0.53***
NHPI	0.24	0.17	0.10	n/a	0.72	n/a
AIAN	1.20	0.64	0.55	0.48	0.53***	0.89
	3,623,459	265,917,236	359,361	185,959,517		
CSE (NAICS 31-33)						
Black	3.95	0.62	0.53	0.59	0.16***	1.11
Hispanic	8.96	1.90	4.31	1.81	0.21***	0.42***
Asian	4.81	3.20	5.03	3.18	0.66***	0.63***
NHPI	0.17	0.04	0.10	0.04	0.24***	0.38***
AIAN	1.04	0.19	0.47	0.18	0.18***	0.38***
	573,317	1,331,188,720	242,848	1,314,552,213		
CSE (NAICS 42)						
Black	3.57	0.47	0.79	0.44	0.13***	0.56***
Hispanic	9.35	3.50	5.73	3.42	0.37***	0.60***
Asian	9.79	6.47	11.48	6.38	0.66***	0.56***
NHPI	0.19	0.04	0.05	0.04	0.21***	0.74
AIAN	0.87	0.21	0.34	0.19	0.24***	0.57***
	685,212	2,751,429,926	297,528	2,708,449,056		
CSE (NAICS 44-45)						
Black	6.41	0.81	1.30	0.70	0.13***	0.54***
Hispanic	10.23	4.34	5.21	4.14	0.42***	0.79***
Asian	8.72	7.43	14.63	7.27	0.85***	0.50***
NHPI	0.19	0.04	0.08	0.03	0.21***	0.45***
AIAN	0.90	0.31	0.42	0.30	0.35***	0.71
	2,499,942	2,110,478,896	635,979	2,019,658,999		

Source: Author's calculations from the 2012 SBO. Notes: Statistical significance is indicated by asterisks (* p-value<0.1, ** p-value<0.05, *** p-value<0.01); "n/a": Data was suppressed by Census due to confidentiality restrictions.

B. Results from the 2017 Annual Survey of Businesses

1. Economy-Wide Results

Turning now to the 2017 ABS, Table 3.3 presents economy-wide results for the United States as a whole. Panel A summarizes the ABS results for each race group. For example, Panel A shows a total of 5.47 million employer firms in the U.S. in 2017 (column 1) with overall sales and receipts of \$12.689 trillion (column 2). These 5.47 million firms had a total of 62.99 million employees (column 3) and a total annual payroll expense of \$2.618 trillion (column 4).

The remaining rows in Panel A provide comparable statistics for non-minority male-owned and minority-owned firms. For example, the table shows that there were 124,004 Black-owned employer firms counted in 2017, and that these firms registered \$127.851 billion in sales and receipts. It also shows that these Black-owned firms employed a total of 1.21 million workers with an annual payroll total of \$36.105 billion.

Panel B in the table converts the figures in Panel A to percentage distributions within each column. For example, Column (1) in Panel B shows that Blacks owned just 2.27 percent of all employer firms in the U.S. Additionally, 5.88 percent of employer firms were Hispanic-owned, 10.15 percent were Asian-owned, 0.13 percent were Native Hawaiian- and other Pacific Islander-owned, and 0.45 percent were American Indian- and Alaska Native-owned.

Column (2) in Panel B provides the same percentage distribution for overall sales and receipts for employer firms. Non-minority males in 2017 in the U.S. owned 52.08 percent of all employer firms and earned 70.71 percent of all sales and receipts. In contrast:

- Although Blacks owned 2.27 percent of all employer firms, they earned only 1.01 percent of all sales and receipts.
- Although Hispanics owned 5.88 percent of all employer firms, they earned only 3.33 percent of all sales and receipts.
- Although Asians owned 10.15 percent of all employer firms, they earned only 6.42 percent of all sales and receipts.
- Although Native Hawaiians and other Pacific Islanders owned 0.13 percent of all employer firms, they earned only 0.07 percent of all sales and receipts.
- Although American Indians and Alaska Natives owned 0.45 percent of all employer firms, they earned only 0.3 percent of all sales and receipts.

These disparities between the availability and utilization of minority-owned firms can be viewed directly from the disparity indexes in Panel C of the table. For example, Panel C shows that Black-owned employer firms in 2017 received just 44.48 percent of what would be expected based on their availability in the market. For Hispanics, the figure was 56.6 percent. For Asians, the figure was 63.27 percent. For Native Hawaiians and other Pacific

Islanders, the figure was 53.09 percent, and for American Indians and Alaska Natives, the figure was 66.89 percent. These disparities are all large, adverse, and statistically significant.

Another way to look at these disparities is by comparing sales and receipts per firm. In Table 3.3, for example, average per firm sales and receipts for non-minority male-owned employer firms was \$3.15 million. In contrast:

- For Black-owned employer firms, average per firm sales and receipts was \$1.03 million. In other words, for every dollar of sales and receipts earned by non-minority male-owned employer firms, Black-owned employer firms received just 33 cents.
- For Hispanic-owned employer firms, average per firm sales and receipts was \$1.31 million. In other words, for every dollar of sales and receipts earned by non-minority male-owned employer firms, Hispanic-owned employer firms received just 42 cents.
- For Asian-owned employer firms, average per firm sales and receipts was \$1.47 million. In other words, for every dollar of sales and receipts earned by non-minority male-owned employer firms, Asian-owned employer firms received just 47 cents.
- For Native Hawaiian- and other Pacific Islander-owned employer firms, average per firm sales and receipts was \$1.23 million. In other words, for every dollar of sales and receipts earned by non-minority male-owned employer firms, Native Hawaiian- and other Pacific Islander-owned employer firms received just 39 cents.
- For American Indian- and Alaska Native-owned employer firms, average per firm sales and receipts was \$1.55 million. In other words, for every dollar of sales and receipts earned by non-minority male-owned employer firms, American Indian- and Alaska Native-owned employer firms received just 49 cents.

As discussed above, these severe disparities in firm earnings have a direct negative and compounding effect on the employees of minority-owned firms. Table 3.3, for example, shows that average payroll per employee at non-minority male-owned employer firms in 2017 was \$45,555. In contrast:

- For Black-owned employer firms, average payroll per employee was just \$29,882. In other words, for every \$1 in wages earned by employees at non-minority male-owned firms, employees at Black-owned firms earned just 66 cents.
- For Hispanic-owned employer firms, average payroll per employee was just \$31,674. In other words, for every \$1 in wages earned by employees at non-minority male-owned firms, employees at Hispanic-owned firms earned just 70 cents.

- For Asian-owned employer firms, average payroll per employee was just \$34,137. In other words, for every \$1 in wages earned by employees at non-minority male-owned firms, employees at Asian-owned firms earned just 75 cents.
- For Native Hawaiian- and Other Pacific Islander-owned employer firms, it was just \$35,386. In other words, for every \$1 in wages earned by employees at non-minority male-owned firms, employees at Native Hawaiian- and Other Pacific Islander-owned firms earned just 78 cents.
- For American Indian- and Alaska Native-owned employer firms, average payroll per employee was just \$39,756. In other words, for every \$1 in wages earned by employees at non-minority male-owned firms, employees at American Indian- and Alaska Native-owned firms earned just 87 cents.

Table 3.3. Disparity Indexes from the 2017 Annual Business Survey, United States, All Industries

	Employer Firms	Sales and Receipts (\$000s)	Employees	Payroll (\$000s)
	(1)	(2)	(3)	(4)
Panel A. Levels				
All Firms	5,474,721	12,689,937,307	62,990,475	2,618,191,164
Non-minority male	2,851,098	8,972,454,223	38,973,541	1,775,434,267
Black	124,004	127,850,815	1,208,270	36,105,467
Hispanic	322,076	422,573,589	2,872,550	90,985,526
Asian	555,638	814,806,324	4,649,688	158,725,110
Native Hawaiian/Pac. Islander	6,847	8,426,209	55,413	1,960,819
Am. Indian & Alaska Native	24,503	37,992,217	221,193	8,793,842
Panel B. Column Percentages				
All Firms	100.00%	100.00%	100.00%	100.00%
Non-minority male	52.08%	70.71%	61.87%	67.81%
Black	2.27%	1.01%	1.92%	1.38%
Hispanic	5.88%	3.33%	4.56%	3.48%
Asian	10.15%	6.42%	7.38%	6.06%
Native Hawaiian/Pac. Islander	0.13%	0.07%	0.09%	0.07%
Am. Indian & Alaska Native	0.45%	0.30%	0.35%	0.34%
Panel C. Disparity Indexes		Column (2) ÷ (1)	(3) ÷ (1)	(4) ÷ (1)
Non-minority male		135.77	118.81	130.21
Black		44.48	84.69	60.88
Hispanic		56.60	77.52	59.07
Asian		63.27	72.73	59.73
Native Hawaiian/Pac. Islander		53.09	70.34	59.88
Am. Indian & Alaska Native		66.89	78.46	75.04

Source: Author's calculations from the 2017 ABS. Notes: (1) Figures are rounded. Rounding was performed subsequent to any mathematical calculations; (2) Excludes publicly owned, foreign-owned, and not-for-profit firms; (3) Totals for "All Firms" includes firms that were equally non-minority/minority-owned; (4) Statistically significant disparity indexes are italicized; (5) "n/a" indicates that data were not disclosed due to confidentiality or other publication restrictions.

2. Industry-Specific Results

Table 3.4 shows the 2017 ABS disparity ratio and its underlying firm and sales percentages for both all firms and employer firms. The top panel, for All Industries, replicates the results seen in Panels B and C in Table 3.3. The remaining panels in Table 3.4 present results for 16 distinct industry sectors, grouped according to four major procurement categories.

When the ABS survey results are disaggregated into major procurement categories and industry sectors, similar patterns of large, adverse, and statistically significant disparities are also observed in the vast majority of cases. Specifically:

- In the All Industries panel of Table 3.4, 100 percent of the disparity ratios are adverse (5 out of 5), 100 percent are large (5 out of 5), and 100 percent are statistically significant (5 out of 5).
- In the Construction (NAICS 23) panel, 100 percent of the disparity ratios are adverse, 100 percent are large, and 100 percent are statistically significant.
- In the Professional Services (NAICS 54) panel, 60 percent of the disparity ratios are adverse, 40 percent are large, and 80 percent are statistically significant.
- In the Professional Services (NAICS 55) panel, 40 percent of the disparity ratios are adverse, 40 percent are large, and 60 percent are statistically significant.
- In the Professional Services (NAICS 56) panel, 80 percent of the disparity ratios are adverse, 80 percent are large, and 100 percent are statistically significant.
- In the General Services (NAICS 48-49) panel, 100 percent of the disparity ratios are adverse, 80 percent are large, and 80 percent are statistically significant.
- In the General Services (NAICS 51) panel, 100 percent of the disparity ratios are adverse, 100 percent are large, and 100 percent are statistically significant.
- In the General Services (NAICS 52) panel, 100 percent of the disparity ratios are adverse, 100 percent are large, and 100 percent are statistically significant.
- In the General Services (NAICS 53) panel, 100 percent of the disparity ratios are adverse, 100 percent are large, and 100 percent are statistically significant.
- In the General Services (NAICS 61) panel, 75 percent of the disparity ratios are adverse, 75 percent are large, and 75 percent are statistically significant.
- In the General Services (NAICS 62) panel, 100 percent of the disparity ratios are adverse, 100 percent are large, and 100 percent are statistically significant.
- In the General Services (NAICS 71) panel, 60 percent of the disparity ratios are adverse, 60 percent are large, and 60 percent are statistically significant.

- In the General Services (NAICS 72) panel, 80 percent of the disparity ratios are adverse, 60 percent are large, and 40 percent are statistically significant.
- In the General Services (NAICS 81) panel, 100 percent of the disparity ratios are adverse, 80 percent are large, and 80 percent are statistically significant.
- In the CSE (NAICS 31-33) panel, 80 percent of the disparity ratios are adverse, 80 percent are large, and 80 percent are statistically significant.
- In the CSE (NAICS 42) panel, 100 percent of the disparity ratios are adverse, 80 percent are large, and 80 percent are statistically significant.
- In the CSE (NAICS 44-45) panel, 100 percent of the disparity ratios are adverse, 80 percent are large, and 80 percent are statistically significant.

These results are evident within each specific minority group as well. Specifically:

- For Blacks, 88 percent of the above disparity ratios are adverse (30 out of 34), 88 percent are large (30 out of 34), and 88 percent are statistically significant (30 out of 34).
- For Hispanics, 88 percent of the above disparity ratios are adverse, 88 percent are large, and 88 percent are statistically significant.
- For Asians, 82 percent of the above disparity ratios are adverse, 82 percent are large, and 94 percent are statistically significant.
- For Native Hawaiians and other Pacific Islanders, 93 percent of the above disparity ratios are adverse, 87 percent are large, and 80 percent are statistically significant.
- For American Indians and Alaska Natives, 82 percent of the above disparity ratios are adverse, 65 percent are large, and 65 percent are statistically significant.

Table 3.4. Percentage of Firms and Sales and Corresponding Disparity Ratios, Employer Firms, United States, 2017

	Percentage of All Employers	Percentage of All Employer Sales	Disparity Ratio Employers
	(1)	(2)	(3)
All Industries			
Black	2.27	1.01	0.44***
Hispanic	5.88	3.33	0.57***
Asian	10.15	6.42	0.63***
NHPI	0.13	0.07	0.53***
AIAN	0.45	0.30	0.67***
	5,474,721	12,689,937,307	
Construction			
Black	1.17	0.72	0.61***
Hispanic	7.16	4.10	0.57***
Asian	2.02	1.37	0.68***
NHPI	0.16	0.10	0.63***
AIAN	0.69	0.52	0.76***
	700,453	1,544,490,456	
Professional Services (NAICS 54)			
Black	2.06	1.60	0.78***
Hispanic	4.32	3.20	0.74***
Asian	7.67	8.84	1.15***
NHPI	0.12	0.10	0.85*
AIAN	0.52	0.52	1.00
	794,235	922,698,077	
Professional Services (NAICS 55)			
Black	1.05	0.62	0.60***
Hispanic	2.08	2.80	1.34
Asian	3.67	4.15	1.13
NHPI	0.13	0.05	0.38***
AIAN	0.28	0.72	2.58***
	17,799	63,794,562	
Professional Services (NAICS 56)			
Black	3.00	2.14	0.71***
Hispanic	9.02	5.46	0.61***
Asian	3.59	4.49	1.25***
NHPI	0.18	0.09	0.51***
AIAN	0.52	0.34	0.66***
	338,083	513,696,279	
General Services (NAICS 48-49)			
Black	3.95	1.18	0.30***
Hispanic	10.33	4.79	0.46***
Asian	5.36	3.85	0.72***
NHPI	0.19	0.09	0.46***
AIAN	0.45	0.44	0.97
	182,196	413,997,717	

	Percentage of All Employers	Percentage of All Employer Sales	Disparity Ratio Employers
	(1)	(2)	(3)
General Services (NAICS 51)			
Black	1.78	0.87	0.49***
Hispanic	3.70	2.15	0.58***
Asian	7.91	5.67	0.72***
NHPI	0.11	0.02	0.20***
AIAN	0.38	0.16	0.43***
	69,855	283,206,026	
General Services (NAICS 52)			
Black	2.10	0.63	0.30***
Hispanic	4.79	2.08	0.43***
Asian	4.17	2.37	0.57***
NHPI	0.09	0.04	0.39***
AIAN	0.39	0.10	0.25***
	221,696	462,341,970	
General Services (NAICS 53)			
Black	1.20	0.66	0.55***
Hispanic	4.00	2.07	0.52***
Asian	5.18	3.31	0.64***
NHPI	0.00	0.00	
AIAN	0.28	0.14	0.50***
	294,449	346,607,366	
General Services (NAICS 61)			
Black	2.90	1.76	0.61***
Hispanic	4.12	4.43	1.08
Asian	10.90	8.73	0.80***
NHPI	0.00	0.00	
AIAN	0.52	0.22	0.43***
	63,171	40,481,264	
General Services (NAICS 62)			
Black	6.76	3.60	0.53***
Hispanic	5.32	3.47	0.65***
Asian	12.83	10.17	0.79***
NHPI	0.11	0.05	0.43***
AIAN	0.44	0.24	0.53***
	587,170	680,014,862	
General Services (NAICS 71)			
Black	2.53	2.01	0.79***
Hispanic	3.02	1.69	0.56***
Asian	3.04	2.13	0.70***
NHPI	0.13	0.13	1.03
AIAN	0.47	0.56	1.17
	100,472	117,212,130	
General Services (NAICS 72)			
Black	1.44	1.47	1.02
Hispanic	8.02	6.04	0.75***
Asian	25.46	18.17	0.71***
NHPI	0.11	0.09	0.80
AIAN	0.35	0.29	0.85
	521,135	628,834,327	

	Percentage of All Employers	Percentage of All Employer Sales	Disparity Ratio Employers
	(1)	(2)	(3)
General Services (NAICS 81)			
Black	2.14	1.28	0.60***
Hispanic	6.49	4.46	0.69***
Asian	14.88	7.86	0.53***
NHPI	0.11	0.07	0.67**
AIAN	0.34	0.30	0.86
	388,652	231,288,863	
CSE (NAICS 31-33)			
Black	0.68	0.70	1.04
Hispanic	4.41	1.87	0.42***
Asian	4.88	3.59	0.74***
NHPI	0.11	0.08	0.75*
AIAN	0.41	0.22	0.54***
	238,204	1,346,629,885	
CSE (NAICS 42)			
Black	0.69	0.44	0.64***
Hispanic	5.49	3.07	0.56***
Asian	12.54	7.17	0.57***
NHPI	0.05	0.01	0.20***
AIAN	0.27	0.21	0.76
	287,476	2,691,602,545	
CSE (NAICS 44-45)			
Black	1.38	0.75	0.55***
Hispanic	4.88	3.12	0.64***
Asian	16.49	8.13	0.49***
NHPI	0.13	0.09	0.67
AIAN	0.37	0.25	0.67**
	636,455	2,240,019,607	

C. Conclusions

While the exact proportions vary, regardless of whether the 2012 SBO data or the 2017 ABS data is examined, a pattern of large, adverse, and statistically significant disparities is consistently observed. This pattern is evident in the economy as a whole, as well as in each major procurement category and industry sector. Moreover, this pattern is observed for every minority group in the data—Blacks, Hispanics, Asians, Native Hawaiians and other Pacific Islanders, and American Indians and Alaska Natives.

IV. There is Strong Evidence of Disparities and Discrimination in Salaries and Wages, Business Formation Rates, and Business Earnings

In this final section, using data from the Census Bureau's *American Community Survey 5-year Public Use Microdata Sample* (ACS PUMS), I test the likelihood that race-neutral factors can account for the large adverse racial disparities observed in the previous sections. This is important because it is fair to ask whether the large disparities documented throughout the disparity studies discussed in Section II, as well as throughout the most recent SBO and ABS surveys examined in Section III, can be adequately explained by something other than discrimination. That is, can these disparities be eliminated by accounting for other, possibly race-neutral, factors that differ between advantaged and disadvantaged groups? Using the statistical technique of regression analysis, I tested this question directly and found that, after controlling for independent variables untainted by discrimination, the disparities facing minority business owners remain large, adverse, and statistically significant in the vast majority of cases.

A. Methods

The first step in testing whether race-neutral factors can account for the large adverse racial disparities shown in Sections II and III is to document the extent of these disparities as observed in the ACS PUMS before any other variables are taken into account. To carry out this step, which we will refer to as the “baseline model”, we use the technique of regression analysis⁵³ to explain three key economic outcomes: annual wages and salaries, the rate of business formation, and annual business owner earnings.

After establishing the baseline model, the next two steps will add several independent variables to the regression that are indicators of qualifications and capacity. First, we will include schooling, age,⁵⁴ and geographic location.⁵⁵ We'll refer to this regression analysis as the “qualifications model.” This model compares individuals who are similarly situated in terms of their educational attainment, their labor market experience, and their geographic

⁵³See fn. 28.

⁵⁴ A person's age is a widely-used measure of their labor market experience and enters the regression equation quadratically.

⁵⁵ Because the U.S. Department of Agriculture (“USDA”) is a Defendant in this case and the Plaintiff's allegations concern its efforts to contract with the USDA's Natural Resources Conservation Service (“NRCS”), we have used NRCS regions to denote geographic location. There are four NRCS regions: Central, Northeast, Southeast, and West. The Central region includes the states of North Dakota, South Dakota, Nebraska, Kansas, Oklahoma, Texas, Minnesota, Iowa, Missouri, Wisconsin, Illinois, and Indiana. The Northeast region includes the states of Michigan, Ohio, West Virginia, New York, Pennsylvania, Maryland, New Jersey, Delaware, the District of Columbia, Vermont, New Hampshire, Massachusetts, Rhode Island, and Maine. The Southeast region includes the states of Arkansas, Louisiana, Kentucky, Tennessee, Mississippi, Alabama, Virginia, North Carolina, South Carolina, Georgia, and Florida. The West region includes the states of Alaska, Hawaii, Washington, Oregon, California, Nevada, Idaho, Utah, Arizona, Montana, Wyoming, Colorado, and New Mexico.

location to see how much, if any, the disparities observed in the baseline model are reduced when these additional factors are accounted for.⁵⁶

The final step incorporates a large number of additional independent variables into the qualifications model that are materially related to the propensity to become a business owner. These include measures of individual financial assets (interest and dividend income⁵⁷, home ownership status, and home property value), family structure (spouse present in the household, number of children in the household, number of workers in the family), mobility (lived in the same house last year), immigration status (foreign born, years in the U.S., English proficiency), military status (veteran), and local macroeconomic conditions by state (general population level, unemployment rate, number of full-time government employees, per capita personal income).⁵⁸ We will refer to this as the “qualifications plus capacities model” to see how much, if any, the disparities observed in the baseline model and in the qualifications model are reduced when these numerous additional variables are accounted for.

B. Data

The data used for these regression analyses are the multi-year estimates combining the 2014 through 2018 *American Community Survey Public Use Microdata Sample* (ACS PUMS) records. The *American Community Survey* is an ongoing annual survey covering the same type of information that was formerly collected in the decennial census “long form.” The ACS is sent to approximately 3.5 million addresses annually, including housing units in all counties in the 50 states and the District of Columbia.⁵⁹ The PUMS file from the ACS contains records for a subsample of the full ACS.⁶⁰ The ACS PUMS provides the full range of population and housing information collected in the annual ACS and in the decennial census, and therefore allows us to examine economic outcomes for different race and ethnic groups in great detail while holding individual differences in a wide variety of other relevant demographic and economic variables constant.⁶¹

The universe for all of the analyses presented in this section includes all prime age (16-64) private sector labor force participants. Business ownership status is identified in the ACS PUMS through the “class of worker” variable, which distinguishes the unincorporated and incorporated self-employed from others in the labor force. The presence of the class of

⁵⁶ See, e.g., Aronson (1991), Blanchflower (2000), Wainwright (2000) for discussions of the influence of these various factors on business ownership or self-employment.

⁵⁷ Interest and dividend income and per capita personal income are included in the model in their logarithmic forms.

⁵⁸ Local macroeconomic data taken from U.S. Bureau of Economic Analysis (2020) (state-level per capital personal income level); U.S. Bureau of Labor Statistics (2020a, 2020b, 2020c, 2020d, 2020e, 2020f) (state-level unemployment rate); U.S. Census Bureau (2019a, 2019b) (state-level general population level); and U.S. Census Bureau (2020e, 2020f, 2020g, 2020h, 2020i) (state-level public sector employment level).

⁵⁹ See U.S. Census Bureau (2020j).

⁶⁰ See U.S. Census Bureau (2021).

⁶¹ These ACS data were released in January 2020. See U.S. Census Bureau (2020d).

worker variable allows us to construct a detailed cross-sectional sample of individual business owners and their associated earnings. The combined 2014-2018 file contains over six million person-level records.

C. Baseline model

1. Unadjusted Disparities in Salaries and Wages are Adverse, Large, and Statistically Significant

A key source of new entrepreneurs in any given industry is the pool of experienced wage and salary workers in similar or related industries.⁶² Other things equal, however, minorities who face discrimination in the labor market will be less available to populate the pool of potential minority-owned businesses.⁶³

The ACS PUMS shows that, on average across all industries during the 2014-2018 time period, annual wages and salaries for minorities of either sex were 40.7 percent lower than for non-Hispanic white (“non-minority”) men. In other words, for every dollar earned by non-minority males during this time, minorities only earned 59 cents on average. This finding is statistically significant.⁶⁴

If we consider each minority group within the SBA 8(a) Program,⁶⁵ a similar phenomenon is observed in all but one case:⁶⁶

- For Blacks, average annual wages and salaries were 48.3 percent lower than for non-minority men. For every dollar earned by non-minority males during this time, Blacks only earned 52 cents on average. This finding is statistically significant.
- For Hispanics, average annual wages and salaries were 45.0 percent lower than for non-minority men. For every dollar earned by non-minority males during this time, Hispanics only earned 55 cents on average. This finding is statistically significant.
- For Asian Pacifics, average annual wages and salaries were 18.2 percent lower than for non-minority men. For every dollar earned by non-minority males during this

⁶² See, e.g., Blanchflower (2000).

⁶³ There is a substantial body of evidence that discriminatory constraints in the capital market prevent minority-owned businesses from obtaining business loans. Furthermore, even when they are able to do so, there is evidence that the loans are not obtained on equal terms: minority-owned firms pay higher interest rates, other things being equal. This is another form of discrimination with an obvious and direct impact on the ability of racial minorities to form businesses and to expand or grow previously formed businesses. See, e.g., NERA Economic Consulting (2017, pp. 177-236) for an extensive overview and analysis of racial disparities and discrimination in capital markets.

⁶⁴ See Table 4.1.

⁶⁵ See fn. 31.

⁶⁶ See Table 4.1.

time, Asian Pacifics only earned 82 cents on average. This finding is statistically significant.

- For Subcontinent Asians, average annual wages and salaries were 17.8 percent higher than for non-minority men. For every dollar earned by non-minority males during this time, Subcontinent Asians earned \$1.18 on average. This finding is statistically significant.
- For Native Americans, average annual wages and salaries were 50.6 percent lower than for non-minority men. For every dollar earned by non-minority males during this time, Native Americans only earned 49 cents on average. This finding is statistically significant.

Similar findings result if we examine the data by major procurement categories such as construction, AECRS, professional services, general services, and CSE. A statistically significant adverse disparity in wage and salary earnings is observed in 88 percent of these cases (*See Table 4.1*).⁶⁷

Table 4.1. Annual Wage Earnings Regressions by Disadvantaged Group, Major Procurement Categories

Race/Ethnicity	Construction	AECRS	Professional Services	General Services	CSE	All Industries
Minority	-30.6%****	-22.7%****	-43.6%****	-41.0%****	-26.4%****	-40.7%****
Black	-37.5%****	-29.1%****	-59.1%****	-47.8%****	-50.5%****	-48.3%****
Hispanic	-30.7%****	-30.7%****	-54.6%****	-46.9%****	-44.4%****	-45.0%****
Asian Pacific	-10.4%*	-11.2%****	-5.1%****	-19.2%****	-15.5%****	-18.2%****
Asian Subcontinent	-4.6%****	-2.0%	37.5%****	26.1%****	-0.3%	17.8%****
Native American	-38.1%****	-38.4%****	-58.7%****	-52.4%****	-48.3%****	-50.6%****
Two or more races	-23.8%****	-19.6%****	-37.8%****	-46.5%****	-45.6%****	-45.3%****

Source: Author's calculations from the 2014-2018 ACS PUMS. Note: Since the dependent variable was measured logarithmically, the reported coefficients are equal to 1 minus the exponentiated raw regression coefficient, so that they may be interpreted as percentage differences.

If we consider just those industry segments relevant to the contracts at issue in this case, we observe similar results as well.⁶⁸ The NAICS codes corresponding to the industries relevant to the contracts identified in Plaintiff's Complaint include NAICS 5416 ("Management, Scientific, and Technical Consulting Services"), NAICS 5611 ("Office

⁶⁷ Complete results appear below in Appendix Tables 4.1A-4.1L.

⁶⁸ See fn. 40, regarding the Plaintiff's industries.

Administrative Services”), and NAICS 5613 (“Employment Services”).⁶⁹ Statistically significant adverse disparities are observed in 82 percent of these cases (*See* Table 4.2).⁷⁰

Table 4.2. Annual Wage Earnings Regressions by Disadvantaged Group, Plaintiff’s Industry Segments

Race/Ethnicity	All Plaintiff NAICS	NAICS 5416	NAICS 561M	NAICS 5613
Minority	-53.7%****	-35.5%****	-44.7%****	-42.5%****
Black	-68.4%****	-46.6%****	-51.8%****	-54.2%****
Hispanic	-57.5%****	-44.9%****	-48.1%****	-38.9%****
Asian Pacific	-21.4%****	-26.9%****	-25.1%****	-0.3%
Asian Subcontinent	20.5%****	-0.1%	4.5%	46.5%****
Native American	-61.6%****	-43.0%****	-37.2%****	-49.7%****
Two or more races	-44.9%****	-37.2%****	-40.3%****	-33.5%****

Source and Notes: *See* Table 4.1.

2. Unadjusted Disparities in Business Formation are Adverse, Large, and Statistically Significant

If discrimination constrains the available pool of business owners this should be evident in the rate of business formation within a given group (*See* Table 4.3).⁷¹ The ACS PUMS shows that, on average across all industries during the 2014-2018 time period, the odds of a minority becoming self-employed are only 58.8 percent of the odds of a non-minority male becoming self-employed.⁷² This finding is statistically significant.⁷³

Considering each specific group of presumptively disadvantaged minorities within the SBA 8(a) Program, a similar phenomenon is observed in all cases.⁷⁴

- For Blacks, the odds of becoming self-employed are only 39.4 percent of the odds for non-minority males. This finding is statistically significant.
- For Hispanics, the odds of becoming self-employed are only 64.8 percent of the odds for non-minority males. This finding is statistically significant.

⁶⁹ The ACS PUMS identifies NAICS 5416 and 5613 explicitly. NAICS 5611 is grouped together in the ACS PUMS with NAICS 5612 (“Facilities Support Services”) and NAICS 5619 (“Other Support Services”). The ACS PUMS refers to these latter three codes collectively as NAICS 561M (“Other Administrative and Other Support Services”).

⁷⁰ Complete results appear below in Appendix Tables 4.2A-4.2H.

⁷¹ Complete results appear below in Appendix Tables 4.3A-4.3L.

⁷² The coefficients from the business formation regressions reported in Tables 4.3 and 4.4 are presented as odds ratios. That is, they represent a given group’s odds of being self-employed relative to (*i.e.*, divided by) the odds of the non-minority males being self-employed. For example, the top row of Table 4.3 shows that, across all industries, the odds of minorities (row 1) as a group being self-employed are only 58.8 percent as high as the odds of non-minority males being self-employed.

⁷³ *See* “All Industries” column, Table 4.3.

⁷⁴ *Ibid.*

- For Asian Pacifics, the odds of becoming self-employed are only 72.7 percent of the odds for non-minority males. This finding is statistically significant.
- For Subcontinent Asians, the odds of becoming self-employed are only 66.8 percent of the odds for non-minority males. This finding is statistically significant.
- For Native Americans, the odds of becoming self-employed are only 63.3 percent of the odds for non-minority males. This finding is statistically significant.

Similar findings result when we subdivide the ACS PUMS data by major procurement categories. A statistically significant adverse disparity in business formation is observed in 93 percent of the cases shown in Table 4.3.

Table 4.3. Annual Business Formation Regressions by Disadvantaged Group, Major Procurement Categories

Race/Ethnicity	Construction	AECRS	Professional Services	General Services	CSE	All Industries
Minority	61.7****	59.7****	55.9****	61.0****	68.8****	58.8****
Black	58.2****	51.1****	41.4****	43.0****	30.8****	39.4****
Hispanic	60.5****	67.8****	72.0****	69.0****	65.4****	64.8****
Asian Pacific	85.7****	54.2****	49.7****	74.9****	1.18****	72.7****
Asian Subcontinent	72.9****	51.0****	29.2****	62.7****	1.62****	66.8****
Native American	54.0****	46.3****	73.4****	52.4****	1.00	63.3****
Two or more races	68.4****	67.1****	63.3****	61.3****	92.5****	61.3****

Source: Author's calculations from the 2014-2018 ACS PUMS. Note: The reported coefficients are odds ratios, interpreted as the ratio of the odds of one group forming a business divided by the odds of the reference group forming a business.

Furthermore, similar findings occur when we consider just the Plaintiff's industry segments. Statistically significant adverse disparities are observed in 86 percent of cases (See Table 4.4).⁷⁵

Table 4.4. Annual Business Formation Regressions by Disadvantaged Group, Plaintiff's Industry Segments

Race/Ethnicity	All Plaintiff NAICS	NAICS 5416	NAICS 561M	NAICS 5613
Minority	39.5****	58.3****	52.9****	39.2****
Black	29.7****	65.8****	46.1****	30.9****
Hispanic	36.1****	60.1****	43.4****	37.9****
Asian Pacific	58.3****	55.5****	81.0*	56.2****
Asian Subcontinent	46.2****	35.9****	65.3*	89.4
Native American	56.4****	98.5	1.29	59.5*
Two or more races	64.1****	80.2****	73.1	56.0****

Source and Notes: See Table 4.3.

⁷⁵ Complete results appear below in Appendix Tables 4.4A-4.4H.

3. Unadjusted Disparities in Business Owner Earnings are Adverse, Large, and Statistically Significant

For those minorities who manage to overcome the odds observed in Tables 4.3 and 4.4 and actually form businesses, how do their earnings from those business fare relative to non-minority male business owners? The ACS PUMS shows that, on average across all industries during the 2014-2018 time period, annual business earnings were 29.9 percent lower for minorities than for non-minority males. This finding is statistically significant (*see* Table 4.5).

Considering each minority group within the SBA 8(a) Program, a similar phenomenon is observed in all but one case (*see* Table 4.5).⁷⁶

- For Blacks, average annual business earnings were 46.2 percent lower than for non-minority men. For every dollar earned by non-minority males during this time, Blacks only earned 54 cents on average. This finding is statistically significant.
- For Hispanics, average annual business earnings were 26.9 percent lower than for non-minority men. For every dollar earned by non-minority males during this time, Hispanics only earned 73 cents on average. This finding is statistically significant.
- For Asian Pacifics, average annual business earnings were 12.7 percent lower than for non-minority men. For every dollar earned by non-minority males during this time, Asian Pacifics only earned 87 cents on average. This finding is statistically significant.
- For Subcontinent Asians, average annual business earnings were 8.1 percent higher than for non-minority men. For every dollar earned by non-minority males during this time, Subcontinent Asians earned \$1.08 on average. This finding is statistically significant.
- For Native Americans, average annual business earnings were 44.3 percent lower than for non-minority men. For every dollar earned by non-minority males during this time, Native Americans only earned 56 cents on average. This finding is statistically significant.

Similar findings result when we subdivide the ACS PUMS data by major procurement categories. A statistically significant adverse disparity in business owner earnings is observed in 83 percent of these cases.

Table 4.5. Annual Business Owner Earnings Regressions by Disadvantaged Group, Major Procurement Categories

Race/Ethnicity	Construc- tion	AECRS	Professional Services	General Services	CSE	All Industries
Minority	-17.3%****	-30.0%****	-35.8%****	-30.7%****	-19.2%****	-29.9%****
Black	-40.3%****	-59.2%****	-53.5%****	-43.5%****	-54.5%****	-46.2%****

⁷⁶ Complete results appear below in Appendix Tables 4.5A-4.5L.

Hispanic	-12.4%****	-16.3%	-33.5%****	-30.5%****	-15.2%****	-26.9%****
Asian Pacific	-1.9%**	-21.1%**	-19.2%****	-10.9%****	9.4%****	-12.7%****
Asian Subcontinent	8.8%	-28.3%*	3.8%*	13.1%****	36.0%****	8.1%****
Native American	-30.3%****	-66.1%**	-52.0%****	-50.1%****	-39.5%****	-44.3%****
Two or more races	-31.5%****	-36.2%*	-42.1%****	-46.7%****	-42.6%****	-46.8%****

Source: Author's calculations from the ACS PUMS. Note: Since the dependent variable was measured logarithmically, the reported coefficients are 1 minus the exponentiated raw regression coefficient, so that they may be interpreted as percentage differences.

Furthermore, similar findings occur when we consider just the Plaintiff's industry segments. Adverse disparities are observed in 82 percent of cases, and almost half of these disparities are statistically significant (*See Table 4.6*).⁷⁷

Table 4.6. Annual Business Owner Earnings Regressions by Disadvantaged Group, Plaintiff's Industry Segments

Race/Ethnicity	All Plaintiff NAICS	NAICS 5416	NAICS 561M	NAICS 5613
Minority	-40.2%****	-35.0%****	-26.1%***	-34.6%****
Black	-44.1%****	-42.8%****	-22.3%	-56.0%****
Hispanic	-19.4%****	-23.0%****	-27.7%	-17.6%
Asian Pacific	-29.8%****	-31.7%****	-48.1%	-2.5%
Asian Subcontinent	1.4%	-5.2%	70.1%	41.5%
Native American	-14.2%	7.5%	-53.0%	-54.1%
Two or more races	-18.2%**	-26.1%***	7.3%	-17.3%

Source and Notes: *See Table 4.5.*

4. Summary

Tables 4.1 to 4.6 document the adverse racial and ethnic disparities that exist in salaries and wages, business formation rates, and business owner earnings—for minorities as a group and among each presumptively disadvantaged group. These disparities exist in the economy as a whole, and in each of five major procurement categories, including two (professional services and general services) that encompass the industries identified in the Plaintiff's Complaint. Moreover, these disparities exist within the industries relevant to the contracts the Plaintiff identifies in its Complaint, that is, NAICS 5416, NAICS 561M, NAICS 5613, regardless of whether we examine those industries collectively or individually. In the vast majority of cases, these adverse disparities are large and statistically significant.

⁷⁷ Complete results appear below in Appendix Tables 4.6A-4.6H.

D. Qualification and Capacities models

1. Disparities Remain Adverse, Large, and Statistically Significant after Adjusting for Qualifications and Capacities

To see if the disparities documented in Tables 4.1 to 4.6 can be explained by qualifications-related factors, we add schooling, age, and geographic location to each regression analysis. The qualifications model allows us to compare individuals who are similarly situated in terms of their educational attainment, their labor market experience, and their geographic location. We are interested to learn how much of the disparity from the baseline model is accounted for by including these qualifications-related factors.

To see if the disparities can be explained by capacity-related factors, we add indicators of individual financial assets, family structure, mobility, immigration status, military status (veteran), and local macroeconomic conditions by state to each regression analysis. The qualifications plus capacities model allows us to compare individuals who not only are similarly situated in terms of educational attainment, labor market experience, and geographic location, but are also similarly situated across a wide range of other attributes material to business ownership. We are interested to learn how much of the disparity from the baseline model and from the qualifications model is accounted for by controlling for capacity-related factors.

a. Findings for Wage and Salary Earnings

Table 4.7 shows the results of these analyses for annual wage and salary earnings. The coefficients from the annual wage and salary earnings regressions presented in Table 4.7 can be interpreted as a given group's earnings, in dollars, for each dollar of earnings in the reference group (non-minority males). For example, the top row of Table 4.7 shows that in the baseline model (column A), minorities as a group across all industries earn just 59¢ for each dollar of non-minority male earnings. When qualifications-related factors are accounted for (column B), this amount rises to 75¢ for each dollar of non-minority male earnings. When capacity-related factors are also accounted for (column C), the amount rises to 78¢ for each dollar of non-minority male earnings. Thus, of the 41¢ racial deficit observed (\$1.00 minus 59¢), qualifications and capacities account for just 19¢ worth (78¢ minus 59¢) (or 45%), leaving 55 percent unexplained. All of these differences are statistically significant.

If we consider each presumptively disadvantaged minority group separately within the economy as a whole, we see that large, adverse, and statistically significant disparities remain for every group even after accounting for qualifications- and capacities-related factors. For Blacks (row 2), the combined qualifications plus capacities model explains just 44 percent of the underlying disparity in annual wages and salaries. For Hispanics (row 3) the figure is 62 percent. For Native Americans (row 6) the figure is 47 percent. For Asian Pacific (row 4) and Subcontinent Asians (row 5), on the other hand, the figures are actually negative. In other words, accounting for qualifications and capacities actually worsens the observed level of disparity for these two groups relative to the baseline. This result occurs

when a given group possesses, on balance, more of the factors that are positively related to earnings than non-minority males possess. All of these results are statistically significant.

Considering major procurement categories, whether we consider minorities as a group or each presumptively disadvantaged minority group separately, we again see that, with just two exceptions, large, adverse, and statistically significant disparities still remain after controlling for qualifications- or qualifications plus capacities-related factors. This is true in construction, AE-CRS, professional services (within which some of the Plaintiff's lines of work fall), general services (within which other of the Plaintiff's lines of work fall), and CSE.⁷⁸ All of these results are statistically significant.

Turning to just those lines of work specific to the Plaintiff, we see that in all cases adverse disparities still remain after controlling for qualifications- and capacities-related factors. This is true when considering NAICS 5416, NAICS 561M, and NAICS 5613 combined, as well as when considering each one separately. It is true when considering minorities as a group and for each minority group separately. In 90 percent of cases these adverse disparities are large and in 98 percent of cases they are statistically significant.

b. Findings for Business Formation

Table 4.8 shows the results for the rate of business formation logit regressions.⁷⁹ The coefficients from the business formation regressions in Table 4.8 are presented as odds ratios. That is, they represented a given group's odds of being self-employed relative to (*i.e.*, divided by) the odds of the non-minority males being self-employed. For example, the top row of Table 4.8 shows that in the baseline model (column A), across all industries, the odds of minorities (row 1) as a group being self-employed are only 59 percent as high as the odds of non-minority males being self-employed. When qualifications-related factors are accounted for (column B), the odds ratio increases to 66 percent. When capacity-related factors are also accounted for (column C), the amount falls back to 60 percent. Thus, the qualifications model accounts for just 17 percent of the disparity in business formation while the qualifications plus capacities model accounts for just 2 percent of the disparity.⁸⁰

⁷⁸ Disparities in the qualifications plus capacities model for Subcontinent Asians in AECRS and in professional services, are adverse but not large.

⁷⁹ Logit regression is used to determine the relationship between a categorical variable—one that can be characterized in terms of a “yes” or a “no” response as opposed to a continuous number—and a set of characteristics that are related to the outcome of the categorical variable. Logit regression produces estimates of the extent to which each characteristic is positively or negatively related to the likelihood that the categorical variable will be a yes or no. In this case, the categorical variable is whether or not an individual is self-employed. Logit regression is one of several techniques that can be used to examine qualitative outcomes. Generally, other techniques such as Probit regression yield similar results. For a detailed discussion, see G.S. Maddala (1983). Logit analysis is performed here using the “logit” command in the statistical program STATA.

⁸⁰ To see this, first note the odds ratio of 0.588 for minorities in the first row of Table 4.8 is 41.2 percentage points below than parity ($1.00 - 0.588 = 0.412$). In column B of the first row, the odds ratio increases by

If we consider each presumptively disadvantaged minority group separately within the economy as a whole, we see that large, adverse, and statistically significant disparities remain for every group even after accounting for qualifications- and capacities-related factors. For Blacks (row 2), the qualifications model explains just 16 percent of the disparity in the baseline model, and the combined qualifications plus capacities model explains only 25 percent of the disparity in the baseline model. For Hispanics (row 3), the qualifications model explains just 8 percent of the disparity in the baseline model. Accounting for all the variables in the qualifications plus capacities model yields actually worsens the level of disparity for Hispanics relative to the baseline, indicating that this group possesses, on balance, more of the factors that are positively related to business formation than non-minority males possess. For Asian Pacific (row 4) and Subcontinent Asian (row 5), there is a similar pattern. The qualifications model explains 27 percent and 47 percent of the disparity in the baseline model, respectively, but in the qualifications plus capacities model the disparities actually worsen compared to the baseline model. Again, this indicates that Asian Pacifics and Subcontinent Asians possess, on balance, more of the factors that are positively related to business formation than non-minority males possess. For Native Americans (row 6), the qualifications model explains just 6 percent of the disparity in the baseline model, and the combined qualifications plus capacities model explains only 12 percent of the disparity in the baseline model.

Turning to major procurement categories, whether we consider minorities as a group or each presumptively disadvantaged minority group separately, we see that large, adverse, and statistically significant disparities are observed in construction, AECRS, and professional services in all cases. In general services, 92 percent of the disparities are large and adverse, and 100 percent are statistically significant. In CSE, 67 percent of the disparities are large and adverse, and 83 percent of cases are statistically significant.

When considering all of the Plaintiff's NAICS codes combined, we observe large, adverse, and statistically significant disparities for minorities and for each separate minority group with only one exception.⁸¹ When considering the Plaintiff's NAICS code 5416, we again observe large, adverse, and statistically significant disparities for minorities and for each separate minority group with the exception of Native Americans.⁸² When considering the Plaintiff's NAICS code 561M, we again observe large, adverse, and statistically significant disparities for minorities and for each separate minority group with the exception of Native Americans, and one instance for the Asian Subcontinent group that is large and adverse but

7.1 percentage points ($0.659 - 0.588 = 0.071$). Finally, 7.1 percentage points is just 17.2 percent of the baseline disparity of 41.2 percentage points ($7.1 \div 41.2 = 17.2$).

⁸¹ The results for Native Americans are not adverse. However, these results are also not statistically significant. Out of 140,113 observations in this business formation regression analysis, only 623 were Native American, and only 91 were self-employed Native Americans.

⁸² The results for Native Americans in NAICS code 5416 are not adverse. However, as with the previous analysis, these results are also not statistically significant. Out of 75,856 observations in this business formation regression analysis, only 211 were Native American, and only 66 were self-employed Native Americans.

not statistically significant.⁸³ When considering the Plaintiff's NAICS code 5613, we again observe large, adverse, and statistically significant disparities for minorities, Blacks, Hispanics, and Asian Pacifics. For Subcontinent Asians, disparities are large and adverse but not significant in the qualifications model, and they are large, adverse, and statistically significant in the qualifications plus capacities model. For Native Americans, the disparities are again not adverse and not statistically significant.⁸⁴

c. Findings for Business Owner Earnings

Table 4.9 shows the results for annual business owner earnings. The coefficients from the annual business owner earnings regressions presented in Table 4.9 can be interpreted just as in Table 4.7 for wage and salary earnings. That is, the coefficient shows the given group's earnings, in dollars, for each dollar of earnings in the reference group (non-minority males). For example, the top row of Table 4.9 shows that in the baseline model (column A), minorities as a group across all industries earn just 70¢ for each dollar of non-minority male business owner earnings. When qualifications-related factors are accounted for (column B), this amount rises to 79¢ for each dollar of non-minority male earnings. When capacity-related factors are also accounted for (column C), the amount falls back to 73¢ for each dollar of non-minority male earnings. Thus, of the 30¢ racial deficit observed (\$1.00 minus 70¢), qualifications and capacities account for just 3¢ worth (73¢ minus 70¢) (or 11%), leaving 89 percent unexplained. All of these differences are statistically significant.

If we consider each presumptively disadvantaged minority group separately within the economy as a whole, we see that large, adverse, and statistically significant disparities remain in almost every case even after accounting for qualifications- and capacities-related factors. For Blacks (row 2), the combined qualifications plus capacities model explains just 31 percent of the underlying disparity in annual business owner earnings. For Hispanics (row 3) the figure is 14 percent. For Native Americans (row 6) the figure is 32 percent. For Asian Pacific (row 4) and Subcontinent Asians (row 5), just as was the case in wages and salaries, the figures are actually negative. That is, accounting for qualifications and capacities actually worsens the level of disparity for these two groups relative to the baseline.⁸⁵ All of these results are statistically significant.

⁸³ The results for Native Americans in NAICS code 561M are not adverse. However, as with the previous analysis, these results are also not statistically significant. Out of 16,317 observations in this business formation regression analysis, only 71 were Native American, and only 13 were self-employed Native Americans.

⁸⁴ Out of 47,940 observations in the business formation regression analysis for NAICS code 5613, only 341 were Native American, and only 12 were self-employed Native Americans.

⁸⁵ In fact, Subcontinent Asians in the baseline model actually have a small but statistically significant advantage in business owner earnings relative to non-minority males. But once qualifications, and then capacities are controlled for, this small statistically significant advantage becomes a large statistically significant disadvantage.

Considering major procurement categories:

- In construction, large, adverse and statistically significant disparities are observed for minorities as a group, Blacks, Hispanics, and Native Americans. For Asian Pacifics, the disparity is adverse in the qualifications model, large and adverse in the qualifications plus capacities model, and statistically significant in both models. For Subcontinent Asians, the disparity is not adverse in the qualifications model and adverse in the qualifications plus capacities model, but neither result is statistically significant.⁸⁶
- In AECRS, large, adverse and statistically significant disparities are observed for minorities as a group, Blacks, Asian Pacifics, Subcontinent Asians, and Native Americans. For Hispanics, the disparities in both the qualifications model and the qualifications plus capacities model are adverse but they are not statistically significant.⁸⁷
- In professional services, large, adverse and statistically significant disparities are observed for minorities as a group, Blacks, Hispanics, Asian Pacifics, and Native Americans. For Subcontinent Asians, the disparity in the qualifications model is adverse and statistically significant and the disparity in the qualifications plus capacities model is large, adverse, and statistically significant.
- In general services, large, adverse and statistically significant disparities are observed for minorities as a group, Blacks, Hispanics, and Native Americans. For Asian Pacifics, the disparity in the qualifications model is adverse but not statistically significant and the disparity in the qualifications plus capacities model is large, adverse, and statistically significant. For Subcontinent Asians, the disparity in the qualifications model is not adverse but it is statistically significant, while the disparity in the qualifications plus capacities model is large, adverse, and statistically significant.
- In CSE, large, adverse and statistically significant disparities are observed for minorities as a group, Blacks, Hispanics, and Native Americans. For Asian Pacifics, the disparity in the qualifications model is adverse but not statistically significant and the disparity in the qualifications plus capacities model is large, adverse, and statistically significant. For Subcontinent Asians, the disparity in the qualifications model is not adverse but is statistically significant, while the disparity in the qualifications plus capacities model is again large, adverse, and statistically significant.

⁸⁶ Out of 77,023 observations in the business owner earnings regression analysis for construction, only 281 were Subcontinent Asians.

⁸⁷ Out of 77,023 observations in the business owner earnings regression analysis for construction, only 281 were Subcontinent Asians.

Considering the Plaintiff's specific industries:

- For all the Plaintiff's NAICS codes combined, large, adverse and statistically significant disparities are observed for minorities as a group, Blacks, Hispanics, and Asian Pacifics. For Subcontinent Asians, the disparity in the qualifications model is not adverse but also not statistically significant, while the disparity in the qualifications plus capacities model is adverse but is not statistically significant. For Native Americans, the disparity in the qualifications model is large and adverse but not statistically significant, while the disparity in the qualifications plus capacities model is adverse but also not statistically significant.⁸⁸
- For NAICS code 5416, large, adverse and statistically significant disparities are observed for minorities as a group, Blacks, Hispanics, and Asian Pacifics. For Subcontinent Asians, the disparity in the qualifications model is adverse but not statistically significant, while the disparity in the qualifications plus capacities model is large and adverse but not statistically significant. For Native Americans, the disparities in both models are not adverse but also not statistically significant.⁸⁹

⁸⁸ Out of 18,301 observations in the business owner earnings regression analysis for construction, only 452 were Subcontinent Asian and only 91 were Native American.

⁸⁹ Out of 14,638 observations in the business owner earnings regression analysis for construction, only 396 were Subcontinent Asian and only 66 were Native American.

Table 4.7. Annual Wage Earnings Regressions, 2014-2018

Independent Variables	Specification		
	Baseline model	Qualifications model	Qualifications + capacities model
	(A)	(B)	(C)
All Industries			
Minority	0.593****	0.745****	0.775****
Black	0.517****	0.671****	0.729****
Hispanic	0.550****	0.792****	0.828****
Asian Pacific	0.818****	0.743****	0.772****
Asian Subcontinent	1.178****	0.830****	0.860****
Native American	0.506****	0.694****	0.740****
Two or more races	0.547****	0.748****	0.778****
No. Observations	5591853	5591853	5487468
Adj. R-squared	0.050	0.425	0.432
Construction			
Minority	0.694****	0.773****	0.817****
Black	0.625****	0.651****	0.736****
Hispanic	0.693****	0.811****	0.870****
Asian Pacific	0.896****	0.778****	0.812****
Asian Subcontinent	0.954*	0.804****	0.832****
Native American	0.619****	0.659****	0.723****
Two or more races	0.762****	0.812****	0.846****
No. Observations	355954	355954	355955
Adj. R-squared	0.037	0.188	0.229
AECRS			
Minority	0.773****	0.826****	0.866****
Black	0.709****	0.760****	0.818****
Hispanic	0.693****	0.823****	0.877****
Asian Pacific	0.888****	0.837****	0.877****
Asian Subcontinent	0.980	0.893****	0.940***
Native American	0.616****	0.744****	0.786****
Two or more races	0.804****	0.895****	0.901****
No. Observations	66288	66288	65985
Adj. R-squared	0.041	0.280	0.298
Professional Services			
Minority	0.563****	0.731****	0.752****
Black	0.408****	0.612****	0.677****
Hispanic	0.454****	0.748****	0.789****
Asian Pacific	0.933****	0.784****	0.792****
Asian Subcontinent	1.318****	0.921****	0.945****
Native American	0.418****	0.632****	0.701****
Two or more races	0.627****	0.745****	0.775****
No. Observations	625894	625894	619594
Adj. R-squared	0.083	0.363	0.388

Independent Variables	Specification		
	Baseline model	Qualifications model	Qualifications + capacities model
	(A)	(B)	(C)
General Services			
Minority	0.621****	0.754****	0.779****
Black	0.578****	0.692****	0.738****
Hispanic	0.573****	0.812****	0.841****
Asian Pacific	0.812****	0.743****	0.773****
Asian Subcontinent	1.145****	0.798****	0.824****
Native American	0.520****	0.719****	0.761****
Two or more races	0.536****	0.741****	0.766****
No. Observations	3446186	3446186	3366541
Adj. R-squared	0.044	0.439	0.442
CSE			
Minority	0.586****	0.736****	0.778****
Black	0.495****	0.674****	0.738****
Hispanic	0.556****	0.777****	0.823****
Asian Pacific	0.845****	0.725****	0.768****
Asian Subcontinent	0.997	0.782****	0.830****
Native American	0.517****	0.698****	0.740****
Two or more races	0.544****	0.769****	0.802****
No. Observations	1627594	1627594	1608075
Adj. R-squared	0.065	0.423	0.440
All Plaintiff NAICS codes			
Minority	0.463****	0.669****	0.686****
Black	0.316****	0.522****	0.590****
Hispanic	0.425****	0.745****	0.776****
Asian Pacific	0.786****	0.757****	0.765****
Asian Subcontinent	1.205****	0.898****	0.914****
Native American	0.384****	0.625****	0.691****
Two or more races	0.551****	0.697****	0.730****
No. Observations	126364	126364	124529
Adj. R-squared	0.096	0.340	0.363
Plaintiff NAICS 5416			
Minority	0.645****	0.719****	0.746****
Black	0.534****	0.601****	0.665****
Hispanic	0.551****	0.713****	0.760****
Asian Pacific	0.731****	0.754****	0.779****
Asian Subcontinent	0.999	0.896****	0.946**
Native American	0.570****	0.707****	0.757****
Two or more races	0.628****	0.714****	0.742****
No. Observations	66392	66392	66110
Adj. R-squared	0.052	0.210	0.235

Independent Variables	Specification		
	Baseline model	Qualifications model	Qualifications + capacities model
	(A)	(B)	(C)
Plaintiff NAICS 561M			
Minority	0.553****	0.675****	0.704****
Black	0.482****	0.581****	0.665****
Hispanic	0.519****	0.735****	0.748****
Asian Pacific	0.749****	0.694****	0.697****
Asian Subcontinent	1.045	0.834**	0.812***
Native American	0.628***	0.696***	0.719***
Two or more races	0.597****	0.699****	0.730****
No. Observations	15054	15054	14834
Adj. R-squared	0.054	0.280	0.312
Plaintiff NAICS 5613			
Minority	0.575****	0.692****	0.700****
Black	0.458****	0.562****	0.626****
Hispanic	0.611****	0.841****	0.852****
Asian Pacific	0.997	0.813****	0.786****
Asian Subcontinent	1.465****	0.956	0.883**
Native American	0.503****	0.635****	0.712****
Two or more races	0.665****	0.735****	0.759****
No. Observations	44918	44918	43585
Adj. R-squared	0.068	0.243	0.277

Source: Author's calculations from the 2014-1018 ACS PUMS. Notes: Statistical significance is indicated by asterisks (* p-value<0.1, ** p-value<0.05, *** p-value<0.01, **** p-value<0.001).

Table 4.8. Business Formation Regressions, 2014-2018

Independent Variables	Specification		
	Baseline model	Qualifications model	Qualifications + capacities model
	(A)	(B)	(C)
All Industries			
Minority	0.588****	0.659****	0.596****
Black	0.394****	0.491****	0.543****
Hispanic	0.648****	0.677****	0.578****
Asian Pacific	0.727****	0.802****	0.621****
Asian Subcontinent	0.668****	0.825****	0.604****
Native American	0.633****	0.654****	0.697****
Two or more races	0.613****	0.828****	0.841****
No. Observations	6046247	6046246	5902242
Pseudo R-squared	0.0100	0.149	0.159
Construction			
Minority	0.617****	0.689****	0.609****
Black	0.582****	0.557****	0.617****
Hispanic	0.605****	0.710****	0.573****
Asian Pacific	0.857****	0.821****	0.650****
Asian Subcontinent	0.729****	0.781****	0.592****
Native American	0.540****	0.583****	0.578****
Two or more races	0.684****	0.806****	0.812****
No. Observations	424047	424047	418943
Pseudo R-squared	0.010	0.056	0.067
AECRS			
Minority	0.597****	0.688****	0.657****
Black	0.511****	0.582****	0.624****
Hispanic	0.678****	0.854****	0.794****
Asian Pacific	0.542****	0.531****	0.456****
Asian Subcontinent	0.510****	0.638****	0.522****
Native American	0.463****	0.474****	0.538****
Two or more races	0.671****	0.859	0.843
No. Observations	69864	69864	69323
Pseudo R-squared	0.008	0.081	0.095
Professional Services			
Minority	0.586****	0.635****	0.614****
Black	0.439****	0.485****	0.527****
Hispanic	0.753****	0.825****	0.756****
Asian Pacific	0.511****	0.543****	0.470****
Asian Subcontinent	0.313****	0.396****	0.341****
Native American	0.751****	0.812****	0.867****
Two or more races	0.655****	0.827****	0.851****
No. Observations	705758	705758	693999
Pseudo R-squared	0.012	0.077	0.084

Independent Variables	Specification		
	Baseline model	Qualifications model	Qualifications + capacities model
	(A)	(B)	(C)
General Services			
Minority	0.661****	0.760****	0.675****
Black	0.467****	0.596****	0.639****
Hispanic	0.708****	0.781****	0.662****
Asian Pacific	0.902****	0.890****	0.669****
Asian Subcontinent	0.871****	1.119****	0.802****
Native American	0.527****	0.565****	0.612****
Two or more races	0.638****	0.887****	0.888****
No. Observations	3738400	3738400	3634589
Pseudo R-squared	0.009	0.129	0.136
CSE			
Minority	0.688****	0.685****	0.547****
Black	0.308****	0.320****	0.362****
Hispanic	0.654****	0.685****	0.534****
Asian Pacific	1.176****	0.984	0.637****
Asian Subcontinent	1.618****	1.438****	0.850****
Native American	1.002	0.985	1.117**
Two or more races	0.780****	0.868****	0.862****
No. Observations	1695118	1695118	1664343
Pseudo R-squared	0.010	0.086	0.107
All Plaintiff NAICS codes			
Minority	0.395****	0.675****	0.704****
Black	0.297****	0.645****	0.717****
Hispanic	0.361****	0.747****	0.725****
Asian Pacific	0.583****	0.611****	0.571****
Asian Subcontinent	0.462****	0.485****	0.440****
Native American	0.564****	1.021	1.128
Two or more races	0.641****	0.983	1.029
No. Observations	140113	140113	136711
Pseudo R-squared	0.025	0.186	0.190
Plaintiff NAICS 5416			
Minority	0.583****	0.751****	0.800****
Black	0.658****	0.828****	0.899**
Hispanic	0.601****	0.848****	0.832****
Asian Pacific	0.555****	0.622****	0.612****
Asian Subcontinent	0.359****	0.480****	0.451****
Native American	0.985	1.118	1.217
Two or more races	0.803****	1.086	1.125*
No. Observations	75856	75856	75193
Pseudo R-squared	0.009	0.108	0.115

Independent Variables	Specification		
	Baseline model	Qualifications model	Qualifications + capacities model
	(A)	(B)	(C)
Plaintiff NAICS 561M			
Minority	0.529****	0.658****	0.637****
Black	0.461****	0.576****	0.679****
Hispanic	0.434****	0.608****	0.528****
Asian Pacific	0.810*	0.756**	0.539****
Asian Subcontinent	0.653*	0.677	0.444***
Native American	1.293	1.306	1.338
Two or more races	0.731	0.906	0.935
No. Observations	16317	16317	15946
Pseudo R-squared	0.016	0.086	0.101
Plaintiff NAICS 5613			
Minority	0.392****	0.502****	0.509****
Black	0.309****	0.406****	0.459****
Hispanic	0.379****	0.559****	0.536****
Asian Pacific	0.562****	0.477****	0.392****
Asian Subcontinent	0.894	0.709*	0.581***
Native American	0.595*	0.808	0.954
Two or more races	0.560***	0.706*	0.742
No. Observations	47940	47940	45572
Pseudo R-squared	0.023	0.096	0.122

Source and Notes: *See* Table 4.7.

Table 4.9. Business Owner Earnings Regressions, 2014-2018

Independent Variables	Specification		
	Baseline model	Qualifications model	Qualifications + capacities model
	(A)	(B)	(C)
All Industries			
Minority	0.701****	0.791****	0.733****
Black	0.538****	0.635****	0.683****
Hispanic	0.731****	0.838****	0.768****
Asian Pacific	0.873****	0.919****	0.781****
Asian Subcontinent	1.081****	1.058***	0.860****
Native American	0.557****	0.627****	0.699****
Two or more races	0.532****	0.662****	0.673****
No. Observations	555388	555388	549731
Adj. R-squared	0.0275	0.120	0.124
Construction			
Minority	0.827****	0.842****	0.799****
Black	0.597****	0.611****	0.686****
Hispanic	0.876****	0.919****	0.865****
Asian Pacific	0.981	0.904**	0.793****
Asian Subcontinent	1.088	1.041	0.900
Native American	0.697****	0.712****	0.795****
Two or more races	0.685****	0.711****	0.743****
No. Observations	77023	77023	76687
Adj. R-squared	0.014	0.037	0.062
AECRS			
Minority	0.700****	0.761****	0.722****
Black	0.408****	0.454****	0.491****
Hispanic	0.837*	0.980	0.936
Asian Pacific	0.789**	0.765**	0.706***
Asian Subcontinent	0.717	0.708*	0.647**
Native American	0.339**	0.329**	0.333**
Two or more races	0.638**	0.743*	0.788
No. Observations	6266	6266	6256
Adj. R-squared	0.021	0.084	0.099
Professional Services			
Minority	0.643****	0.766****	0.732****
Black	0.462****	0.563****	0.619****
Hispanic	0.668****	0.891****	0.848****
Asian Pacific	0.807****	0.742****	0.673****
Asian Subcontinent	1.018	0.919*	0.803****
Native American	0.475****	0.612****	0.695****
Two or more races	0.582****	0.693****	0.712****
No. Observations	102486	102486	101890
Adj. R-squared	0.019	0.116	0.130

Independent Variables	Specification		
	Baseline model	Qualifications model	Qualifications + capacities model
	(A)	(B)	(C)
General Services			
Minority	0.731****	0.817****	0.755****
Black	0.622****	0.713****	0.740****
Hispanic	0.717****	0.826****	0.762****
Asian Pacific	0.954***	0.976	0.838****
Asian Subcontinent	1.206****	1.065**	0.881****
Native American	0.525****	0.599****	0.657****
Two or more races	0.528****	0.671****	0.669****
No. Observations	371402	371402	366905
Adj. R-squared	0.024	0.130	0.130
CSE			
Minority	0.808****	0.790****	0.669****
Black	0.455****	0.503****	0.556****
Hispanic	0.848****	0.826****	0.705****
Asian Pacific	1.094***	0.983	0.727****
Asian Subcontinent	1.360****	1.250****	0.874***
Native American	0.605****	0.618****	0.688****
Two or more races	0.574****	0.659****	0.672****
No. Observations	75049	75049	74377
Adj. R-squared	0.026	0.083	0.099
All Plaintiff NAICS codes			
Minority	0.598****	0.726****	0.739****
Black	0.425****	0.559****	0.644****
Hispanic	0.624****	0.806****	0.803****
Asian Pacific	0.676****	0.702****	0.673****
Asian Subcontinent	1.034	1.014	0.928
Native American	0.619**	0.858	0.955
Two or more races	0.652****	0.818**	0.828**
No. Observations	18301	18301	18187
Adj. R-squared	0.019	0.092	0.107
Plaintiff NAICS 5416			
Minority	0.650****	0.714****	0.714****
Black	0.510****	0.572****	0.629****
Hispanic	0.660****	0.770****	0.770****
Asian Pacific	0.683****	0.683****	0.637****
Asian Subcontinent	0.952	0.948	0.888
Native American	0.952	1.075	1.130
Two or more races	0.639****	0.739***	0.752***
No. Observations	14638	14638	14588
Adj. R-squared	0.016	0.059	0.075

Independent Variables	Specification		
	Baseline model	Qualifications model	Qualifications + capacities model
	(A)	(B)	(C)
Plaintiff NAICS 561M			
Minority	0.739**	0.872	0.936
Black	0.777	0.841	0.930
Hispanic	0.723*	0.810	0.823
Asian Pacific	0.519***	0.700	0.888
Asian Subcontinent	1.701	1.744	1.205
Native American	0.470	0.471	0.460
Two or more races	1.073	1.683	1.707
No. Observations	1599	1599	1590
Adj. R-squared	0.009	0.058	0.062
Plaintiff NAICS 5613			
Minority	0.654****	0.788**	0.899
Black	0.440****	0.542****	0.748*
Hispanic	0.824	1.077	1.147
Asian Pacific	0.975	0.884	0.841
Asian Subcontinent	1.415	1.377	1.212
Native American	0.459	0.610	0.797
Two or more races	0.827	1.018	1.061
No. Observations	2064	2064	2009
Adj. R-squared	0.014	0.080	0.127

Source and Notes: *See* Table 4.7.

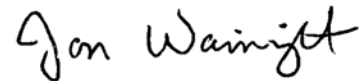
This section has shown that when we examine the status of minorities compared to non-minority males in the industry segments relevant to the SBA Section 8(a) Business Development Program in general, and the Plaintiff's specific lines of work in particular, the results look very similar to what we observe elsewhere in the economy.

That is, even when other non-discriminatory factors are held constant using the statistical technique of regression analysis, the disparities in salaries and wages, business formation rates, and business owner earnings, between Blacks, Hispanics, Asians, and Native Americans, on the one hand, and their non-minority male counterparts, on the other, remain large, adverse, and statistically significant in the vast majority of cases. I have documented such disparities in this report for the nation as a whole and throughout the states, and in the economy as a whole as well as in all major procurement categories and industry sectors, including those within which the Plaintiff operates.

These results are fully consistent with the conclusion that discrimination continues to adversely affect minorities and women operating in United States business markets, and in particular those markets that are relevant to the SBA Section 8(a) Business Development Program.

V. Overall Conclusions

In preparing this report, I conducted extensive original research using over 200 previously produced disparity studies, as well as Census Bureau data from the *Survey of Business Owners*, the *Annual Business Survey*, and the *American Community Survey*. After reviewing this material, and based on the findings presented in this report, I conclude that, taken as a whole, they provide strong evidence of large, adverse, and statistically significant disparities facing minority-owned business enterprises in the United States. Moreover, these disparities cannot be adequately explained by differences between the relevant populations in factors untainted by the effects of discrimination and are therefore consistent with the presence of discrimination in the business market. This is the case in all major markets for government contracting and procurement including construction, AECRS, professional services, general services, and CSE, including those industries specific to the Plaintiff in this matter.



Jon Wainwright, Ph.D.

February 4, 2022

This report is subject to revision upon access to additional data or testimony.

My rate for work done on this matter is \$600 per hour. My qualifications are documented above in Section I and in my curriculum vitae, which is attached as Exhibit A. At this time, I have not prepared any exhibits that I expect to use as summary of or support for my positions other than those contained herein. I may prepare such exhibits in the future as part of the trial preparation process.

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VII. Appendix Tables

Table 4.1A. Annual Wage Earnings Regressions, Construction, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
MBE or WBE?	.	.	.
MBE	0.694**** (-105.80)	0.773**** (-74.00)	0.817**** (-47.83)
WBE	0.771**** (-44.88)	0.667**** (-75.20)	0.674**** (-75.54)
Year	1.037**** (33.24)	1.037**** (35.87)	1.021**** (13.86)
Age		1.132**** (150.12)	1.096**** (102.37)
Age squared		0.999**** (-128.18)	0.999**** (-103.58)
Schooling		.	.
Nursery school/preschool		1.025* (1.95)	1.035*** (2.87)
Grade 9		0.977 (-1.62)	0.970** (-2.21)
Grade 10		0.916**** (-6.13)	0.912**** (-6.63)
Grade 11		0.915**** (-6.43)	0.911**** (-6.96)
12th grade - no diploma		1.068**** (4.82)	1.039*** (2.90)
Regular high school diploma		1.242**** (19.35)	1.206**** (17.21)
GED or alternative credential		1.043**** (3.41)	1.036*** (2.89)
Some college, but less than 1 year		1.309**** (22.22)	1.255**** (19.29)
1 or more years college credit, no degree		1.360**** (26.63)	1.300**** (23.33)
Associate's degree		1.460**** (31.13)	1.359**** (25.96)
Bachelor's degree		1.923**** (55.29)	1.696**** (45.86)
Master's degree		2.250**** (53.70)	1.929**** (44.81)
Professional degree beyond a bachelor's degree		2.265**** (28.02)	1.914**** (23.04)
Doctorate degree		1.996**** (14.13)	1.803**** (12.41)
NRCS region		.	.
Northeast		0.994 (-1.45)	0.939**** (-13.10)
Southeast		0.885**** (-30.17)	0.932**** (-16.33)
West		1.037**** (8.79)	0.976**** (-5.35)

Independent Variables	Specification		
	Model A	Model B	Model C
Construction		.	.
		.	.
Interest and dividend income (log)			1.011****
			(25.35)
Home is owned free and clear			1.060****
			(15.98)
Property value			1.000****
			(53.97)
Married, spouse present			1.384****
			(94.35)
Number of children in family			0.995****
			(-3.82)
Number of workers in family			0.893****
			(-54.40)
Lived in same house 1 year ago			1.013***
			(3.04)
Foreign born			1.151****
			(18.01)
Years in U.S., if immigrant			1.009****
			(31.18)
Speaks English well or very well			1.047****
			(10.15)
Veteran			0.986**
			(-2.37)
Statewide general population			1.000****
			(-9.46)
Statewide unemployment rate			1.003
			(1.33)
Statewide government FTEs			1.000****
			(10.24)
Statewide per capita income (log)			1.510****
			(30.72)
Constant	37294.345****	1815.553****	38.896****
	(2686.38)	(372.23)	(25.03)
Adj. R-squared	0.035	0.186	0.228
Number of Obs.	355954	355954	353955

Source and Notes: See Table 4.1. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.1B. Annual Wage Earnings Regressions, AECRS, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
MBE or WBE?	.	.	.
MBE	0.773**** (-30.33)	0.826**** (-25.69)	0.866**** (-16.61)
WBE	0.676**** (-45.84)	0.701**** (-48.01)	0.718**** (-45.26)
Year	1.015**** (6.28)	1.016**** (7.61)	0.999 (-0.35)
Age		1.152**** (77.64)	1.124**** (55.85)
Age squared		0.999**** (-66.23)	0.999**** (-52.60)
Schooling		.	.
Nursery school/preschool		0.914 (-0.98)	0.936 (-0.73)
Grade 9		0.896 (-1.10)	0.901 (-1.07)
Grade 10		0.765*** (-3.00)	0.788*** (-2.74)
Grade 11		0.584**** (-6.33)	0.581**** (-6.55)
12th grade - no diploma		0.989 (-0.14)	0.994 (-0.07)
Regular high school diploma		1.106 (1.46)	1.106 (1.49)
GED or alternative credential		1.098 (1.29)	1.101 (1.36)
Some college, but less than 1 year		1.219*** (2.85)	1.215*** (2.86)
1 or more years college credit, no degree		1.248*** (3.22)	1.237*** (3.16)
Associate's degree		1.332**** (4.16)	1.295**** (3.85)
Bachelor's degree		1.938**** (9.68)	1.796**** (8.78)
Master's degree		2.260**** (11.90)	2.036**** (10.62)
Professional degree beyond a bachelor's degree		2.139**** (10.68)	1.915**** (9.34)
Doctorate degree		2.490**** (12.71)	2.259**** (11.62)
NRCS region		.	.
Northeast		0.997 (-0.31)	0.962**** (-3.84)
Southeast		0.960**** (-4.79)	0.988 (-1.42)
West		0.980** (-2.41)	0.935**** (-7.34)
Profess., Tech. & Sci. Services		.	.

Independent Variables	Specification		
	Model A	Model B	Model C
		.	.
Interest and dividend income (log)			1.010****
			(15.90)
Home is owned free and clear			1.030****
			(3.52)
Property value			1.000****
			(19.95)
Married, spouse present			1.268****
			(31.23)
Number of children in family			0.985****
			(-4.58)
Number of workers in family			0.860****
			(-31.54)
Lived in same house 1 year ago			1.007
			(0.83)
Foreign born			1.040**
			(2.24)
Years in U.S., if immigrant			1.004****
			(6.25)
Speaks English well or very well			0.979*
			(-1.91)
Veteran			1.042****
			(3.85)
Statewide general population			1.000****
			(-3.83)
Statewide unemployment rate			0.988***
			(-2.65)
Statewide government FTEs			1.000****
			(5.07)
Statewide per capita income (log)			1.361****
			(11.49)
Constant	68697.515****	1487.095****	112.172****
	(1329.82)	(93.29)	(15.69)
Adj. R-squared	0.036	0.280	0.297
Number of Obs.	66288	66288	65985

Source and Notes: See Table 4.1. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.1C. Annual Wage Earnings Regressions, Professional Services ex AECRS, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
MBE or WBE?	.	.	.
	.	.	.
MBE	0.564**** (-159.81)	0.724**** (-106.03)	0.744**** (-86.07)
WBE	0.670**** (-108.95)	0.659**** (-137.25)	0.683**** (-128.17)
Year	1.046**** (42.40)	1.030**** (33.76)	1.007**** (5.31)
Age		1.173**** (219.71)	1.135**** (158.72)
Age squared		0.998**** (-192.29)	0.999**** (-156.83)
Schooling		.	.
		.	.
Nursery school/preschool		0.986 (-0.84)	0.991 (-0.56)
Grade 9		0.902**** (-5.26)	0.902**** (-5.39)
Grade 10		0.770**** (-13.68)	0.770**** (-14.10)
Grade 11		0.765**** (-15.06)	0.771**** (-14.99)
12th grade - no diploma		0.988 (-0.66)	0.973 (-1.60)
Regular high school diploma		1.207**** (13.21)	1.188**** (12.36)
GED or alternative credential		1.019 (1.20)	1.028* (1.81)
Some college, but less than 1 year		1.300**** (17.68)	1.279**** (16.95)
1 or more years college credit, no degree		1.388**** (22.85)	1.353**** (21.60)
Associate's degree		1.449**** (25.36)	1.373**** (22.24)
Bachelor's degree		2.303**** (58.72)	1.997**** (49.89)
Master's degree		2.826**** (71.68)	2.313**** (59.31)
Professional degree beyond a bachelor's degree		3.371**** (80.71)	2.704**** (67.57)
Doctorate degree		3.128**** (68.84)	2.526**** (57.45)
NRCS region		.	.
		.	.
Northeast		1.058**** (15.96)	0.963**** (-9.14)
Southeast		0.975**** (-6.91)	1.015**** (3.99)
West		1.091**** (24.05)	0.980**** (-5.23)
Management of Companies		1.191****	1.204****

Independent Variables	Specification		
	Model A	Model B	Model C
		(16.09)	(17.71)
Admin. & Supportive Services		0.625****	0.669****
		(-157.68)	(-137.83)
Interest and dividend income (log)			1.015****
			(47.76)
Home is owned free and clear			1.029****
			(9.05)
Property value			1.000****
			(78.40)
Married, spouse present			1.372****
			(103.95)
Number of children in family			0.975****
			(-19.58)
Number of workers in family			0.839****
			(-91.41)
Lived in same house 1 year ago			1.009**
			(2.52)
Foreign born			1.144****
			(20.81)
Years in U.S., if immigrant			1.006****
			(27.04)
Speaks English well or very well			1.040****
			(9.82)
Veteran			1.018****
			(3.10)
Statewide general population			1.000****
			(-6.51)
Statewide unemployment rate			1.001
			(0.56)
Statewide government FTEs			1.000****
			(9.36)
Statewide per capita income (log)			1.768****
			(50.02)
Constant	48182.221****	932.295****	4.745****
	(2650.64)	(332.38)	(12.49)
Adj. R-squared	0.044	0.360	0.386
Number of Obs.	625894	625894	619594

Source and Notes: See Table 4.1. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.1D. Annual Wage Earnings Regressions, General Services, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
MBE or WBE?	.	.	.
MBE	0.590**** (-312.51)	0.747**** (-217.85)	0.772**** (-173.91)
WBE	0.653**** (-260.73)	0.699**** (-274.56)	0.705**** (-270.42)
Year	1.028**** (58.42)	1.022**** (61.29)	1.011**** (19.13)
Age		1.182**** (610.03)	1.145**** (438.07)
Age squared		0.998**** (-522.58)	0.998**** (-431.93)
Schooling		.	.
Nursery school/preschool		1.026**** (3.55)	1.019*** (2.61)
Grade 9		0.871**** (-16.96)	0.839**** (-22.08)
Grade 10		0.702**** (-48.43)	0.667**** (-56.53)
Grade 11		0.755**** (-41.16)	0.708**** (-51.29)
12th grade - no diploma		1.030**** (4.09)	0.973**** (-3.86)
Regular high school diploma		1.238**** (35.95)	1.167**** (26.36)
GED or alternative credential		1.095**** (13.89)	1.049**** (7.36)
Some college, but less than 1 year		1.296**** (42.18)	1.241**** (35.54)
1 or more years college credit, no degree		1.357**** (51.10)	1.293**** (43.52)
Associate's degree		1.599**** (77.48)	1.450**** (62.14)
Bachelor's degree		2.202**** (132.81)	1.883**** (107.78)
Master's degree		2.776**** (167.79)	2.280**** (137.09)
Professional degree beyond a bachelor's degree		4.007**** (211.91)	3.145**** (176.99)
Doctorate degree		3.642**** (182.71)	2.886**** (152.27)
NRCS region		.	.
Northeast		1.041**** (28.41)	0.980**** (-11.75)
Southeast		0.981**** (-12.84)	1.010**** (6.69)
West		1.093**** (59.18)	1.006**** (3.98)
Warehousing		0.856****	0.869****

Independent Variables	Specification		
	Model A	Model B	Model C
		(-34.76)	(-32.46)
Information		1.098****	1.082****
		(27.00)	(23.28)
Finance & Insurance		1.277****	1.243****
		(85.06)	(77.77)
Real Estate		0.921****	0.902****
		(-22.13)	(-28.70)
Profess., Tech. & Sci. Services		1.120****	1.094****
		(41.33)	(33.68)
Management of Companies		1.335****	1.311****
		(27.15)	(26.25)
Admin. & Supportive Services		0.698****	0.720****
		(-120.55)	(-113.08)
Educational Services		0.549****	0.610****
		(-199.70)	(-166.30)
Medical Services		0.931****	0.955****
		(-27.29)	(-18.21)
Social Assistance Services		0.512****	0.549****
		(-185.90)	(-168.88)
Arts & Entertainment		0.582****	0.600****
		(-204.46)	(-197.42)
Other Services		0.650****	0.664****
		(-146.90)	(-143.20)
Interest and dividend income (log)			1.014****
			(94.51)
Home is owned free and clear			1.017****
			(12.72)
Property value			1.000****
			(144.21)
Married, spouse present			1.293****
			(202.91)
Number of children in family			0.962****
			(-73.15)
Number of workers in family			0.861****
			(-190.94)
Lived in same house 1 year ago			1.002
			(1.16)
Foreign born			1.152****
			(51.21)
Years in U.S., if immigrant			1.008****
			(79.97)
Speaks English well or very well			1.038****
			(22.24)
Veteran			1.007***
			(2.68)
Statewide general population			1.000****
			(-4.53)
Statewide unemployment rate			1.009****
			(11.06)
Statewide government FTEs			1.000****
			(7.73)

Independent Variables	Specification		
	Model A	Model B	Model C
Statewide per capita income (log)			1.535****
			(91.05)
Constant	38278.079****	680.780****	15.150****
	(5610.49)	(772.34)	(52.70)
Adj. R-squared	0.032	0.438	0.442
Number of Obs.	3446186	3446186	3366541

Source and Notes: See Table 4.1. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.1E. Annual Wage Earnings Regressions, Goods, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
MBE or WBE?	.	.	.
MBE	0.586**** (-259.26)	0.736**** (-180.90)	0.778**** (-128.89)
WBE	0.578**** (-252.62)	0.681**** (-220.87)	0.696**** (-211.77)
Year	1.022**** (35.68)	1.021**** (42.64)	1.013**** (17.63)
Age		1.177**** (450.09)	1.142**** (327.15)
Age squared		0.998**** (-381.77)	0.999**** (-326.11)
Schooling		.	.
Nursery school/preschool		0.998 (-0.29)	1.006 (0.74)
Grade 9		0.921**** (-8.58)	0.903**** (-10.98)
Grade 10		0.818**** (-23.09)	0.779**** (-29.44)
Grade 11		0.839**** (-21.74)	0.789**** (-29.93)
12th grade - no diploma		1.078**** (9.06)	1.022*** (2.70)
Regular high school diploma		1.323**** (40.68)	1.239**** (31.75)
GED or alternative credential		1.144**** (17.94)	1.087**** (11.34)
Some college, but less than 1 year		1.419**** (48.82)	1.328**** (40.22)
1 or more years college credit, no degree		1.482**** (56.51)	1.375**** (46.57)
Associate's degree		1.584**** (64.43)	1.434**** (51.44)
Bachelor's degree		2.375**** (124.41)	2.016**** (102.58)
Master's degree		3.110**** (152.75)	2.506**** (125.76)
Professional degree beyond a bachelor's degree		3.652**** (118.23)	2.903**** (99.60)
Doctorate degree		4.313**** (140.03)	3.349**** (118.44)
NRCS region		.	.
Northeast		0.979**** (-11.74)	0.965**** (-16.65)
Southeast		0.945**** (-29.51)	0.968**** (-15.57)
West		1.069**** (33.26)	1.008**** (3.50)
Manufacturing-NAICS 32		1.203****	1.174****

Independent Variables	Specification		
	Model A	Model B	Model C
		(55.46)	(49.54)
Manufacturing-NAICS 33		1.199****	1.174****
		(61.39)	(55.69)
Wholesale Trade		1.134****	1.096****
		(37.42)	(27.92)
Retail Trade-NAICS 44		0.782****	0.780****
		(-83.62)	(-86.52)
Retail Trade-NAICS 45		0.656****	0.661****
		(-132.31)	(-132.80)
Interest and dividend income (log)			1.017****
			(82.66)
Home is owned free and clear			1.034****
			(18.76)
Property value			1.000****
			(99.35)
Married, spouse present			1.337****
			(171.44)
Number of children in family			0.980****
			(-28.44)
Number of workers in family			0.868****
			(-139.80)
Lived in same house 1 year ago			0.997
			(-1.24)
Foreign born			1.112****
			(27.41)
Years in U.S., if immigrant			1.009****
			(67.38)
Speaks English well or very well			1.070****
			(28.91)
Veteran			0.962****
			(-12.42)
Statewide general population			1.000****
			(-6.34)
Statewide unemployment rate			1.001
			(0.61)
Statewide government FTEs			1.000****
			(9.86)
Statewide per capita income (log)			1.243****
			(34.37)
Constant	38619.404****	670.841****	135.813****
	(4644.72)	(632.10)	(70.76)
Adj. R-squared	0.055	0.422	0.439
Number of Obs.	1627594	1627594	1608075

Source and Notes: See Table 4.1. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.1F. Annual Wage Earnings Regressions, All Industries, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
MBE or WBE?	.	.	.
MBE	0.593**** (-432.97)	0.745**** (-297.71)	0.775**** (-227.21)
WBE	0.633**** (-377.17)	0.691**** (-369.78)	0.700**** (-361.63)
Year	1.027**** (74.79)	1.023**** (81.66)	1.012**** (27.70)
Age		1.178**** (785.39)	1.141**** (564.17)
Age squared		0.998**** (-671.36)	0.999**** (-559.41)
Schooling		.	.
Nursery school/preschool		1.020**** (4.07)	1.021**** (4.29)
Grade 9		0.910**** (-17.04)	0.886**** (-22.42)
Grade 10		0.759**** (-53.88)	0.726**** (-64.01)
Grade 11		0.793**** (-48.40)	0.750**** (-61.09)
12th grade - no diploma		1.050**** (9.82)	0.999 (-0.30)
Regular high school diploma		1.265**** (57.39)	1.197**** (44.69)
GED or alternative credential		1.102**** (21.45)	1.059**** (12.97)
Some college, but less than 1 year		1.333**** (67.38)	1.273**** (57.40)
1 or more years college credit, no degree		1.391**** (79.89)	1.322**** (68.43)
Associate's degree		1.585**** (109.37)	1.445**** (88.77)
Bachelor's degree		2.231**** (194.91)	1.917**** (160.30)
Master's degree		2.838**** (243.89)	2.332**** (200.80)
Professional degree beyond a bachelor's degree		3.986**** (284.56)	3.129**** (238.14)
Doctorate degree		3.753**** (248.22)	2.973**** (208.40)
NRCS region		.	.
Northeast		1.015**** (14.04)	0.972**** (-22.23)
Southeast		0.961**** (-35.57)	0.991**** (-7.38)
West		1.078**** (66.20)	1.004**** (3.42)
NAICS sector		.	.

Independent Variables	Specification		
	Model A	Model B	Model C
		.	.
Extractive Industries		2.185**** (137.93)	2.093**** (133.35)
Utilities		2.042**** (131.59)	1.962**** (127.31)
Construction		1.439**** (99.76)	1.407**** (95.13)
Manufacturing-NAICS 31		1.297**** (60.64)	1.312**** (64.38)
Manufacturing-NAICS 32		1.572**** (114.61)	1.560**** (114.77)
Manufacturing-NAICS 33		1.569**** (124.76)	1.560**** (125.18)
Wholesale Trade		1.482**** (99.00)	1.452**** (95.68)
Retail Trade-NAICS 44		1.015**** (4.20)	1.023**** (6.44)
Retail Trade-NAICS 45		0.851**** (-42.24)	0.867**** (-38.14)
Transportation		1.376**** (80.08)	1.366**** (79.62)
Warehousing		1.177**** (32.66)	1.187**** (34.98)
Information		1.518**** (99.72)	1.482**** (95.69)
Finance & Insurance		1.770**** (152.71)	1.700**** (144.29)
Real Estate		1.273**** (55.14)	1.234**** (48.85)
Profess., Tech. & Sci. Services		1.554**** (121.04)	1.501**** (113.31)
Management of Companies		1.849**** (57.66)	1.793**** (56.44)
Admin. & Supportive Services		0.962**** (-10.21)	0.986**** (-3.67)
Educational Services		0.758**** (-72.84)	0.833**** (-48.06)
Medical Services		1.295**** (73.01)	1.312**** (77.91)
Social Assistance Services		0.708**** (-80.77)	0.753**** (-66.92)
Arts & Entertainment		0.796**** (-64.53)	0.817**** (-57.72)
Other Services		0.896**** (-29.01)	0.908**** (-25.93)
Interest and dividend income (log)			1.014**** (127.81)
Home is owned free and clear			1.024**** (23.92)
Property value			1.000**** (183.47)

Independent Variables	Specification		
	Model A	Model B	Model C
Married, spouse present			1.317**** (286.16)
Number of children in family			0.969**** (-77.90)
Number of workers in family			0.863**** (-250.51)
Lived in same house 1 year ago			1.001 (0.68)
Foreign born			1.148**** (64.78)
Years in U.S., if immigrant			1.009**** (111.01)
Speaks English well or very well			1.049**** (37.41)
Veteran			0.988**** (-6.41)
Statewide general population			1.000**** (-11.89)
Statewide unemployment rate			1.005**** (8.61)
Statewide government FTEs			1.000**** (16.77)
Statewide per capita income (log)			1.434**** (100.60)
Constant	38596.278**** (7836.65)	529.763**** (947.08)	23.890**** (80.63)
Adj. R-squared	0.040	0.424	0.432
Number of Obs.	5591853	5591853	5487468

Source and Notes: See Table 4.1. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.1G. Annual Wage Earnings Regressions, Construction, Detailed Race, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
Detailed Race/Ethnicity	.	.	.
Black	0.625**** (-59.33)	0.651**** (-58.49)	0.736**** (-42.32)
Hispanic	0.693**** (-95.55)	0.811**** (-52.42)	0.870**** (-26.50)
Asian Pacific	0.896**** (-8.16)	0.778**** (-20.05)	0.812**** (-16.48)
Subcontinent Asian	0.954* (-1.67)	0.804**** (-8.35)	0.832**** (-7.16)
Alaska Native	0.619**** (-29.54)	0.659**** (-27.83)	0.723**** (-22.25)
Other race	0.713**** (-9.06)	0.775**** (-7.43)	0.809**** (-6.38)
Two or more races	0.762**** (-19.79)	0.812**** (-16.49)	0.846**** (-13.68)
Non-Hispanic white female?	.	.	.
Non-Hispanic white female	0.771**** (-44.93)	0.666**** (-75.56)	0.673**** (-75.85)
Year	1.037**** (33.05)	1.037**** (35.38)	1.022**** (14.22)
Age		1.132**** (150.18)	1.096**** (102.89)
Age squared		0.999**** (-127.90)	0.999**** (-104.00)
Schooling		.	.
Nursery school/preschool		1.014 (1.09)	1.027** (2.24)
Grade 9		0.977 (-1.63)	0.969** (-2.34)
Grade 10		0.933**** (-4.87)	0.920**** (-6.05)
Grade 11		0.935**** (-4.85)	0.920**** (-6.23)
12th grade - no diploma		1.084**** (5.93)	1.047**** (3.50)
Regular high school diploma		1.272**** (21.40)	1.220**** (18.24)
GED or alternative credential		1.070**** (5.44)	1.048**** (3.84)
Some college, but less than 1 year		1.341**** (24.20)	1.270**** (20.24)
1 or more years college credit, no degree		1.398**** (28.92)	1.318**** (24.53)
Associate's degree		1.499**** (33.23)	1.378**** (27.08)
Bachelor's degree		1.969**** (57.15)	1.720**** (46.98)
Master's degree		2.305****	1.965****

Independent Variables	Specification		
	Model A	Model B	Model C
		(55.14)	(45.92)
Professional degree beyond a bachelor's degree		2.311****	1.942****
		(28.73)	(23.56)
Doctorate degree		2.040****	1.841****
		(14.59)	(12.86)
NRCS region		.	.
		.	.
Northeast		1.002	0.942****
		(0.52)	(-12.38)
Southeast		0.896****	0.939****
		(-26.97)	(-14.70)
West		1.032****	0.975****
		(7.58)	(-5.73)
Construction		.	.
		.	.
Interest and dividend income (log)			1.011****
			(25.23)
Home is owned free and clear			1.060****
			(15.84)
Property value			1.000****
			(54.24)
Married, spouse present			1.381****
			(93.70)
Number of children in family			0.994****
			(-4.19)
Number of workers in family			0.893****
			(-54.47)
Lived in same house 1 year ago			1.013***
			(3.00)
Foreign born			1.124****
			(14.74)
Years in U.S., if immigrant			1.009****
			(31.56)
Speaks English well or very well			1.026****
			(5.55)
Veteran			0.987**
			(-2.10)
Statewide general population			1.000****
			(-10.71)
Statewide unemployment rate			1.005**
			(2.30)
Statewide government FTEs			1.000****
			(10.89)
Statewide per capita income (log)			1.520****
			(31.20)
Constant	37322.081****	1761.079****	34.969****
	(2689.31)	(370.66)	(24.29)
Adj. R-squared	0.037	0.188	0.229
Number of Obs.	355954	355954	353955

Source and Notes: See Table 4.1. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.1H. Annual Wage Earnings Regressions, AECRS, Detailed Race, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
Detailed Race/Ethnicity	.	.	.
	.	.	.
Black	0.709**** (-19.10)	0.760**** (-17.46)	0.818**** (-12.93)
Hispanic	0.693**** (-29.28)	0.823**** (-17.59)	0.877**** (-10.74)
Asian Pacific	0.888**** (-7.91)	0.837**** (-13.38)	0.877**** (-8.79)
Subcontinent Asian	0.980 (-0.82)	0.893**** (-5.33)	0.940*** (-2.73)
Alaska Native	0.616**** (-8.01)	0.744**** (-5.64)	0.786**** (-4.66)
Other race	0.820** (-2.26)	0.858** (-2.01)	0.901 (-1.41)
Two or more races	0.804**** (-8.53)	0.895**** (-5.00)	0.901**** (-4.79)
Non-Hispanic white female?	.	.	.
	.	.	.
Non-Hispanic white female	0.676**** (-45.95)	0.701**** (-48.03)	0.718**** (-45.26)
Year	1.015**** (6.18)	1.015**** (7.52)	0.999 (-0.33)
Age		1.153**** (77.77)	1.124**** (55.98)
Age squared		0.999**** (-66.33)	0.999**** (-52.74)
Schooling		.	.
		.	.
Nursery school/preschool		0.915 (-0.97)	0.936 (-0.73)
Grade 9		0.901 (-1.05)	0.904 (-1.04)
Grade 10		0.766*** (-2.98)	0.787*** (-2.74)
Grade 11		0.586**** (-6.29)	0.582**** (-6.52)
12th grade - no diploma		0.990 (-0.12)	0.994 (-0.07)
Regular high school diploma		1.108 (1.48)	1.106 (1.50)
GED or alternative credential		1.100 (1.31)	1.102 (1.36)
Some college, but less than 1 year		1.220*** (2.85)	1.214*** (2.85)
1 or more years college credit, no degree		1.249*** (3.23)	1.237*** (3.17)
Associate's degree		1.333**** (4.17)	1.296**** (3.85)
Bachelor's degree		1.933**** (9.64)	1.795**** (8.76)
Master's degree		2.250****	2.033****

Independent Variables	Specification		
	Model A	Model B	Model C
		(11.84)	(10.60)
Professional degree beyond a bachelor's degree		2.131****	1.913****
		(10.63)	(9.32)
Doctorate degree		2.467****	2.255****
		(12.58)	(11.58)
NRCS region		.	.
		.	.
Northeast		0.998	0.962****
		(-0.27)	(-3.83)
Southeast		0.963****	0.989
		(-4.49)	(-1.26)
West		0.977***	0.934****
		(-2.70)	(-7.41)
Profess., Tech. & Sci. Services		.	.
		.	.
Interest and dividend income (log)			1.010****
			(15.75)
Home is owned free and clear			1.029****
			(3.42)
Property value			1.000****
			(19.82)
Married, spouse present			1.265****
			(30.86)
Number of children in family			0.986****
			(-4.50)
Number of workers in family			0.861****
			(-31.44)
Lived in same house 1 year ago			1.008
			(0.88)
Foreign born			1.032*
			(1.80)
Years in U.S., if immigrant			1.004****
			(6.34)
Speaks English well or very well			0.970***
			(-2.63)
Veteran			1.044****
			(3.95)
Statewide general population			1.000****
			(-3.92)
Statewide unemployment rate			0.989**
			(-2.54)
Statewide government FTEs			1.000****
			(5.11)
Statewide per capita income (log)			1.361****
			(11.50)
Constant	68752.423****	1481.471****	110.338****
	(1332.89)	(93.24)	(15.63)
Adj. R-squared	0.041	0.280	0.298
Number of Obs.	66288	66288	65985

Source and Notes: See Table 4.1. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.11. Annual Wage Earnings Regressions, Professional Services ex AECRS, Detailed Race, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
Detailed Race/Ethnicity	.	.	.
	.	.	.
Black	0.409**** (-158.99)	0.605**** (-104.65)	0.672**** (-83.17)
Hispanic	0.454**** (-171.75)	0.742**** (-71.56)	0.783**** (-52.35)
Asian Pacific	0.949**** (-7.34)	0.779**** (-41.29)	0.785**** (-36.96)
Subcontinent Asian	1.375**** (39.12)	0.920**** (-11.95)	0.943**** (-7.46)
Alaska Native	0.413**** (-38.15)	0.623**** (-24.46)	0.695**** (-19.16)
Other race	0.581**** (-16.36)	0.686**** (-13.62)	0.710**** (-12.80)
Two or more races	0.622**** (-43.07)	0.732**** (-33.87)	0.764**** (-29.93)
Non-Hispanic white female?	.	.	.
	.	.	.
Non-Hispanic white female	0.670**** (-111.23)	0.659**** (-137.70)	0.682**** (-128.73)
Year	1.043**** (40.26)	1.029**** (33.17)	1.008**** (5.55)
Age		1.172**** (218.83)	1.135**** (158.71)
Age squared		0.998**** (-190.95)	0.999**** (-157.39)
Schooling		.	.
		.	.
Nursery school/preschool		0.976 (-1.46)	0.984 (-0.99)
Grade 9		0.903**** (-5.17)	0.899**** (-5.57)
Grade 10		0.785**** (-12.67)	0.771**** (-13.99)
Grade 11		0.787**** (-13.46)	0.775**** (-14.69)
12th grade - no diploma		1.008 (0.42)	0.978 (-1.26)
Regular high school diploma		1.238**** (14.95)	1.193**** (12.69)
GED or alternative credential		1.046*** (2.84)	1.032** (2.01)
Some college, but less than 1 year		1.334**** (19.37)	1.283**** (17.15)
1 or more years college credit, no degree		1.429**** (24.85)	1.362**** (22.00)
Associate's degree		1.483**** (26.92)	1.380**** (22.51)
Bachelor's degree		2.324**** (59.19)	1.994**** (49.54)
Master's degree		2.792****	2.291****

Independent Variables	Specification		
	Model A	Model B	Model C
		(70.47)	(58.18)
Professional degree beyond a bachelor's degree		3.422****	2.707****
		(81.59)	(67.42)
Doctorate degree		3.130****	2.543****
		(68.67)	(57.61)
NRCS region		.	.
		.	.
Northeast		1.061****	0.965****
		(17.00)	(-8.48)
Southeast		0.989***	1.024****
		(-2.93)	(6.43)
West		1.076****	0.975****
		(20.15)	(-6.41)
Management of Companies		1.200****	1.209****
		(16.83)	(18.11)
Admin. & Supportive Services		0.636****	0.676****
		(-150.98)	(-133.90)
Interest and dividend income (log)			1.014****
			(46.93)
Home is owned free and clear			1.024****
			(7.59)
Property value			1.000****
			(78.47)
Married, spouse present			1.356****
			(99.86)
Number of children in family			0.976****
			(-18.64)
Number of workers in family			0.841****
			(-90.09)
Lived in same house 1 year ago			1.012****
			(3.37)
Foreign born			1.117****
			(17.01)
Years in U.S., if immigrant			1.007****
			(30.47)
Speaks English well or very well			1.000
			(-0.06)
Veteran			1.020****
			(3.50)
Statewide general population			1.000****
			(-7.28)
Statewide unemployment rate			1.002
			(1.25)
Statewide government FTEs			1.000****
			(9.88)
Statewide per capita income (log)			1.769****
			(50.10)
Constant	48645.115****	923.995****	4.581****
	(2708.19)	(331.92)	(12.21)
Adj. R-squared	0.083	0.363	0.388
Number of Obs.	625894	625894	619594

Source and Notes: See Table 4.1. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.1J. Annual Wage Earnings Regressions, General Services, Detailed Race, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
Detailed Race/Ethnicity	.	.	.
	.	.	.
Black	0.522**** (-265.94)	0.674**** (-204.49)	0.725**** (-165.25)
Hispanic	0.531**** (-293.67)	0.797**** (-129.88)	0.828**** (-94.89)
Asian Pacific	0.808**** (-66.49)	0.749**** (-115.62)	0.774**** (-92.37)
Subcontinent Asian	1.261**** (46.46)	0.848**** (-42.53)	0.875**** (-32.70)
Alaska Native	0.476**** (-85.96)	0.703**** (-53.07)	0.750**** (-43.99)
Other race	0.591**** (-35.68)	0.728**** (-28.16)	0.746**** (-26.51)
Two or more races	0.535**** (-127.57)	0.738**** (-80.25)	0.765**** (-71.38)
Non-Hispanic white female?	.	.	.
	.	.	.
Non-Hispanic white female	0.653**** (-262.39)	0.698**** (-276.37)	0.704**** (-271.86)
Year	1.027**** (56.75)	1.022**** (60.13)	1.011**** (19.71)
Age		1.182**** (609.86)	1.145**** (439.14)
Age squared		0.998**** (-521.76)	0.998**** (-432.70)
Schooling		.	.
		.	.
Nursery school/preschool		1.006 (0.77)	1.001 (0.13)
Grade 9		0.870**** (-17.11)	0.836**** (-22.54)
Grade 10		0.715**** (-45.98)	0.674**** (-55.06)
Grade 11		0.772**** (-37.92)	0.717**** (-49.32)
12th grade - no diploma		1.045**** (6.07)	0.983** (-2.45)
Regular high school diploma		1.265**** (39.49)	1.182**** (28.54)
GED or alternative credential		1.118**** (17.00)	1.061**** (9.14)
Some college, but less than 1 year		1.325**** (45.77)	1.258**** (37.71)
1 or more years college credit, no degree		1.390**** (55.08)	1.312**** (46.01)
Associate's degree		1.633**** (80.88)	1.470**** (64.40)
Bachelor's degree		2.244**** (135.93)	1.910**** (110.01)
Master's degree		2.818****	2.309****

Independent Variables	Specification		
	Model A	Model B	Model C
		(170.04)	(138.85)
Professional degree beyond a bachelor's degree		4.058****	3.178****
		(213.73)	(178.37)
Doctorate degree		3.694****	2.932****
		(184.64)	(154.34)
NRCS region		.	.
		.	.
Northeast		1.046****	0.983****
		(32.22)	(-10.23)
Southeast		0.994****	1.018****
		(-4.17)	(11.27)
West		1.083****	1.003**
		(52.62)	(2.02)
Warehousing		0.858****	0.868****
		(-34.31)	(-32.59)
Information		1.096****	1.079****
		(26.52)	(22.67)
Finance & Insurance		1.273****	1.240****
		(84.04)	(76.83)
Real Estate		0.918****	0.899****
		(-23.19)	(-29.49)
Profess., Tech. & Sci. Services		1.114****	1.089****
		(39.07)	(32.00)
Management of Companies		1.331****	1.307****
		(26.84)	(25.96)
Admin. & Supportive Services		0.697****	0.718****
		(-121.05)	(-114.12)
Educational Services		0.549****	0.609****
		(-199.82)	(-166.60)
Medical Services		0.933****	0.956****
		(-26.41)	(-17.76)
Social Assistance Services		0.514****	0.550****
		(-184.53)	(-168.43)
Arts & Entertainment		0.581****	0.599****
		(-205.59)	(-198.47)
Other Services		0.648****	0.662****
		(-148.13)	(-144.04)
Interest and dividend income (log)			1.014****
			(93.60)
Home is owned free and clear			1.014****
			(10.27)
Property value			1.000****
			(145.27)
Married, spouse present			1.287****
			(198.63)
Number of children in family			0.962****
			(-72.96)
Number of workers in family			0.861****
			(-191.11)
Lived in same house 1 year ago			1.002
			(1.54)

Independent Variables	Specification		
	Model A	Model B	Model C
Foreign born			1.142****
			(47.60)
Years in U.S., if immigrant			1.008****
			(80.77)
Speaks English well or very well			1.004**
			(2.56)
Veteran			1.008***
			(3.14)
Statewide general population			1.000****
			(-7.29)
Statewide unemployment rate			1.010****
			(12.69)
Statewide government FTEs			1.000****
			(9.15)
Statewide per capita income (log)			1.538****
			(91.46)
Constant	38388.267****	667.254****	14.504****
	(5647.14)	(770.14)	(51.86)
Adj. R-squared	0.044	0.439	0.442
Number of Obs.	3446186	3446186	3366541

Source and Notes: See Table 4.1. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.1K. Annual Wage Earnings Regressions, Goods, Detailed Race, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
Detailed Race/Ethnicity	.	.	.
	.	.	.
Black	0.495**** (-211.62)	0.674**** (-147.46)	0.738**** (-112.95)
Hispanic	0.556**** (-221.51)	0.777**** (-112.85)	0.823**** (-73.34)
Asian Pacific	0.845**** (-38.41)	0.725**** (-90.93)	0.768**** (-66.32)
Subcontinent Asian	0.997 (-0.40)	0.782**** (-41.35)	0.830**** (-29.89)
Alaska Native	0.517**** (-57.00)	0.698**** (-39.46)	0.740**** (-33.76)
Other race	0.542**** (-28.06)	0.724**** (-18.85)	0.772**** (-15.50)
Two or more races	0.544**** (-87.84)	0.769**** (-48.05)	0.802**** (-41.01)
Non-Hispanic white female?	.	.	.
	.	.	.
Non-Hispanic white female	0.578**** (-253.91)	0.681**** (-221.18)	0.696**** (-211.91)
Year	1.022**** (34.88)	1.021**** (42.09)	1.014**** (18.17)
Age		1.177**** (450.13)	1.142**** (327.59)
Age squared		0.998**** (-381.55)	0.999**** (-326.47)
Schooling		.	.
		.	.
Nursery school/preschool		0.982** (-2.15)	0.993 (-0.90)
Grade 9		0.918**** (-8.99)	0.898**** (-11.53)
Grade 10		0.827**** (-21.80)	0.783**** (-28.76)
Grade 11		0.851**** (-19.98)	0.795**** (-28.94)
12th grade - no diploma		1.089**** (10.27)	1.029**** (3.47)
Regular high school diploma		1.343**** (42.87)	1.250**** (33.02)
GED or alternative credential		1.160**** (19.72)	1.095**** (12.29)
Some college, but less than 1 year		1.442**** (50.95)	1.340**** (41.45)
1 or more years college credit, no degree		1.508**** (58.91)	1.390**** (48.01)
Associate's degree		1.610**** (66.60)	1.449**** (52.83)
Bachelor's degree		2.412**** (126.45)	2.038**** (103.96)
Master's degree		3.152****	2.535****

Independent Variables	Specification		
	Model A	Model B	Model C
		(154.11)	(126.85)
Professional degree beyond a bachelor's degree		3.696****	2.933****
		(119.31)	(100.48)
Doctorate degree		4.377****	3.407****
		(141.20)	(119.81)
NRCS region		.	.
		.	.
Northeast		0.983****	0.966****
		(-9.47)	(-16.00)
Southeast		0.957****	0.974****
		(-22.57)	(-12.46)
West		1.060****	1.005**
		(28.73)	(2.19)
Manufacturing-NAICS 32		1.202****	1.174****
		(55.44)	(49.61)
Manufacturing-NAICS 33		1.200****	1.176****
		(61.59)	(56.10)
Wholesale Trade		1.131****	1.095****
		(36.75)	(27.70)
Retail Trade-NAICS 44		0.782****	0.781****
		(-83.84)	(-86.42)
Retail Trade-NAICS 45		0.658****	0.662****
		(-131.49)	(-132.15)
Interest and dividend income (log)			1.017****
			(82.43)
Home is owned free and clear			1.031****
			(17.44)
Property value			1.000****
			(100.60)
Married, spouse present			1.334****
			(169.95)
Number of children in family			0.979****
			(-28.70)
Number of workers in family			0.867****
			(-140.30)
Lived in same house 1 year ago			0.998
			(-1.15)
Foreign born			1.106****
			(25.65)
Years in U.S., if immigrant			1.009****
			(67.39)
Speaks English well or very well			1.046****
			(18.49)
Veteran			0.963****
			(-12.14)
Statewide general population			1.000****
			(-8.54)
Statewide unemployment rate			1.002*
			(1.65)
Statewide government FTEs			1.000****
			(11.26)

Independent Variables	Specification		
	Model A	Model B	Model C
Statewide per capita income (log)			1.242****
			(34.21)
Constant	38689.263****	658.341****	134.745****
	(4669.06)	(629.98)	(70.66)
Adj. R-squared	0.065	0.423	0.440
Number of Obs.	1627594	1627594	1608075

Source and Notes: See Table 4.1. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.1L. Annual Wage Earnings Regressions, All Industries, Detailed Race, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
Detailed Race/Ethnicity	.	.	.
	.	.	.
Black	0.517**** (-352.56)	0.671**** (-265.36)	0.729**** (-208.87)
Hispanic	0.550**** (-390.05)	0.792**** (-182.02)	0.828**** (-126.15)
Asian Pacific	0.818**** (-80.75)	0.743**** (-149.75)	0.772**** (-117.34)
Subcontinent Asian	1.178**** (40.64)	0.830**** (-58.85)	0.860**** (-45.12)
Alaska Native	0.506**** (-107.80)	0.694**** (-74.05)	0.740**** (-62.06)
Other race	0.586**** (-46.24)	0.729**** (-35.08)	0.757**** (-31.71)
Two or more races	0.547**** (-158.39)	0.748**** (-97.53)	0.778**** (-85.31)
Non-Hispanic white female?	.	.	.
	.	.	.
Non-Hispanic white female	0.633**** (-379.19)	0.690**** (-372.50)	0.699**** (-363.67)
Year	1.026**** (72.85)	1.022**** (80.29)	1.012**** (28.54)
Age		1.178**** (785.17)	1.141**** (565.38)
Age squared		0.998**** (-670.36)	0.999**** (-560.29)
Schooling		.	.
		.	.
Nursery school/preschool		1.003 (0.53)	1.006 (1.16)
Grade 9		0.908**** (-17.33)	0.882**** (-23.10)
Grade 10		0.773**** (-50.48)	0.733**** (-62.05)
Grade 11		0.810**** (-43.91)	0.759**** (-58.47)
12th grade - no diploma		1.065**** (12.73)	1.008* (1.67)
Regular high school diploma		1.293**** (62.66)	1.213**** (47.82)
GED or alternative credential		1.125**** (26.07)	1.071**** (15.55)
Some college, but less than 1 year		1.364**** (72.67)	1.290**** (60.50)
1 or more years college credit, no degree		1.426**** (85.74)	1.342**** (71.99)
Associate's degree		1.621**** (114.51)	1.466**** (92.06)
Bachelor's degree		2.277**** (199.60)	1.945**** (163.52)
Master's degree		2.886****	2.364****

Independent Variables	Specification		
	Model A	Model B	Model C
		(247.24)	(203.35)
Professional degree beyond a bachelor's degree		4.043****	3.164****
		(287.26)	(240.10)
Doctorate degree		3.814****	3.025****
		(250.93)	(211.27)
NRCS region		.	.
		.	.
Northeast		1.020****	0.974****
		(18.98)	(-20.48)
Southeast		0.974****	0.998
		(-23.60)	(-1.55)
West		1.068****	1.001
		(57.68)	(0.97)
NAICS sector		.	.
		.	.
Extractive Industries		2.197****	2.103****
		(138.99)	(134.30)
Utilities		2.059****	1.975****
		(133.20)	(128.51)
Construction		1.441****	1.410****
		(100.15)	(95.74)
Manufacturing-NAICS 31		1.307****	1.319****
		(62.46)	(65.82)
Manufacturing-NAICS 32		1.583****	1.569****
		(116.47)	(116.31)
Manufacturing-NAICS 33		1.580****	1.571****
		(126.83)	(127.09)
Wholesale Trade		1.488****	1.459****
		(100.21)	(96.95)
Retail Trade-NAICS 44		1.022****	1.029****
		(6.18)	(8.17)
Retail Trade-NAICS 45		0.861****	0.874****
		(-39.30)	(-35.94)
Transportation		1.392****	1.379****
		(82.95)	(82.04)
Warehousing		1.193****	1.198****
		(35.37)	(36.85)
Information		1.532****	1.493****
		(101.98)	(97.47)
Finance & Insurance		1.784****	1.711****
		(154.90)	(146.09)
Real Estate		1.282****	1.242****
		(56.82)	(50.38)
Profess., Tech. & Sci. Services		1.561****	1.509****
		(122.43)	(114.69)
Management of Companies		1.862****	1.804****
		(58.42)	(57.07)
Admin. & Supportive Services		0.972****	0.993*
		(-7.57)	(-1.87)
Educational Services		0.766****	0.840****
		(-69.98)	(-45.86)

Independent Variables	Specification		
	Model A	Model B	Model C
Medical Services		1.312****	1.326****
		(76.84)	(80.90)
Social Assistance Services		0.719****	0.762****
		(-76.90)	(-64.24)
Arts & Entertainment		0.803****	0.823****
		(-62.08)	(-55.64)
Other Services		0.903****	0.915****
		(-26.95)	(-23.98)
Interest and dividend income (log)			1.014****
			(126.97)
Home is owned free and clear			1.022****
			(21.32)
Property value			1.000****
			(185.20)
Married, spouse present			1.312****
			(281.78)
Number of children in family			0.969****
			(-78.08)
Number of workers in family			0.863****
			(-251.07)
Lived in same house 1 year ago			1.001
			(0.97)
Foreign born			1.137****
			(59.73)
Years in U.S., if immigrant			1.009****
			(111.70)
Speaks English well or very well			1.020****
			(14.61)
Veteran			0.989****
			(-5.90)
Statewide general population			1.000****
			(-15.75)
Statewide unemployment rate			1.006****
			(10.71)
Statewide government FTEs			1.000****
			(18.87)
Statewide per capita income (log)			1.436****
			(100.98)
Constant	38691.300****	513.579****	22.825****
	(7879.97)	(941.74)	(79.48)
Adj. R-squared	0.050	0.425	0.432
Number of Obs.	5591853	5591853	5487468

Source and Notes: See Table 4.1. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.2A. Annual Wage Earnings Regressions, All Plaintiff NAICS, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
MBE or WBE?	.	.	.
MBE	0.463**** (-90.06)	0.669**** (-53.26)	0.686**** (-45.44)
WBE	0.697**** (-41.30)	0.726**** (-43.25)	0.741**** (-41.48)
Year	1.056**** (21.63)	1.035**** (16.19)	1.007** (2.11)
Age		1.159**** (82.49)	1.124**** (59.76)
Age squared		0.998**** (-73.14)	0.999**** (-61.06)
Schooling		.	.
Nursery school/preschool		0.990 (-0.20)	0.993 (-0.14)
Grade 9		0.843*** (-3.14)	0.886** (-2.25)
Grade 10		0.706**** (-6.75)	0.760**** (-5.42)
Grade 11		0.803**** (-4.64)	0.843**** (-3.66)
12th grade - no diploma		0.952 (-1.02)	0.960 (-0.88)
Regular high school diploma		1.258**** (5.80)	1.235**** (5.44)
GED or alternative credential		0.981 (-0.46)	1.014 (0.34)
Some college, but less than 1 year		1.369**** (7.71)	1.326**** (7.05)
1 or more years college credit, no degree		1.600**** (11.88)	1.533**** (10.97)
Associate's degree		1.697**** (13.14)	1.574**** (11.46)
Bachelor's degree		2.834**** (26.62)	2.373**** (22.45)
Master's degree		3.277**** (29.98)	2.594**** (24.47)
Professional degree beyond a bachelor's degree		3.716**** (29.42)	2.856**** (24.00)
Doctorate degree		3.451**** (27.14)	2.686**** (22.13)
NRCS region		.	.
Northeast		1.033**** (3.89)	0.947**** (-5.56)
Southeast		0.970**** (-3.47)	1.016* (1.84)
West		0.999 (-0.16)	0.897**** (-11.54)
Admin. & Supportive Services		0.605****	0.664****

Independent Variables	Specification		
	Model A	Model B	Model C
		(-75.26)	(-62.81)
Interest and dividend income (log)			1.012****
			(16.14)
Home is owned free and clear			1.071****
			(8.91)
Property value			1.000****
			(31.71)
Married, spouse present			1.440****
			(48.17)
Number of children in family			0.969****
			(-9.64)
Number of workers in family			0.832****
			(-38.33)
Lived in same house 1 year ago			1.001
			(0.14)
Foreign born			1.197****
			(11.18)
Years in U.S., if immigrant			1.008****
			(13.03)
Speaks English well or very well			1.072****
			(7.07)
Veteran			1.009
			(0.66)
Statewide general population			1.000**
			(-2.10)
Statewide unemployment rate			0.991**
			(-2.11)
Statewide government FTEs			1.000****
			(4.14)
Statewide per capita income (log)			1.765****
			(20.72)
Constant	47068.124****	1063.495****	5.330****
	(1120.23)	(129.56)	(5.56)
Adj. R-squared	0.064	0.334	0.360
Number of Obs.	126364	126364	124529

Source and Notes: See Table 4.1. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.2B. Annual Wage Earnings Regressions, NAICS 5416, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
MBE or WBE?	.	.	.
MBE	0.645**** (-42.45)	0.719**** (-34.30)	0.746**** (-27.09)
WBE	0.641**** (-46.27)	0.667**** (-46.14)	0.690**** (-42.79)
Year	1.020**** (6.70)	1.019**** (7.01)	0.993* (-1.68)
Age		1.177**** (68.23)	1.145**** (50.07)
Age squared		0.998**** (-62.16)	0.998**** (-50.66)
Schooling		.	.
Nursery school/preschool		1.039 (0.33)	1.077 (0.66)
Grade 9		0.810* (-1.65)	0.796* (-1.84)
Grade 10		0.734** (-2.57)	0.749** (-2.47)
Grade 11		0.794** (-2.11)	0.820* (-1.86)
12th grade - no diploma		0.996 (-0.04)	0.991 (-0.09)
Regular high school diploma		1.106 (1.16)	1.097 (1.10)
GED or alternative credential		1.048 (0.51)	1.043 (0.47)
Some college, but less than 1 year		1.197** (2.05)	1.177* (1.91)
1 or more years college credit, no degree		1.284*** (2.89)	1.245*** (2.61)
Associate's degree		1.299*** (3.01)	1.233** (2.48)
Bachelor's degree		2.117**** (8.74)	1.825**** (7.21)
Master's degree		2.486**** (10.60)	2.040**** (8.54)
Professional degree beyond a bachelor's degree		2.724**** (11.29)	2.177**** (9.02)
Doctorate degree		2.580**** (10.68)	2.104**** (8.62)
NRCS region		.	.
Northeast		1.054**** (5.01)	0.939**** (-5.11)
Southeast		0.981* (-1.74)	1.015 (1.35)
West		0.956**** (-4.05)	0.864**** (-12.39)
Profess., Tech. & Sci. Services		.	.

Independent Variables	Specification		
	Model A	Model B	Model C
		.	.
Interest and dividend income (log)			1.010****
			(13.36)
Home is owned free and clear			1.028***
			(2.67)
Property value			1.000****
			(27.90)
Married, spouse present			1.328****
			(28.72)
Number of children in family			0.971****
			(-6.97)
Number of workers in family			0.819****
			(-30.99)
Lived in same house 1 year ago			0.984
			(-1.55)
Foreign born			1.136****
			(6.14)
Years in U.S., if immigrant			1.005****
			(7.09)
Speaks English well or very well			0.990
			(-0.80)
Veteran			1.038**
			(2.23)
Statewide general population			1.000***
			(-2.68)
Statewide unemployment rate			0.997
			(-0.46)
Statewide government FTEs			1.000***
			(3.28)
Statewide per capita income (log)			1.858****
			(17.97)
Constant	74530.706****	1062.938****	3.272***
	(1027.77)	(69.98)	(3.07)
Adj. R-squared	0.041	0.207	0.233
Number of Obs.	66392	66392	66110

Source and Notes: See Table 4.1. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.2C. Annual Wage Earnings Regressions, NAICS 561M, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
MBE or WBE?	.	.	.
MBE	0.553**** (-26.38)	0.675**** (-19.39)	0.704**** (-15.61)
WBE	0.715**** (-14.84)	0.671**** (-20.19)	0.687**** (-19.52)
Year	1.031**** (4.71)	1.029**** (5.08)	1.019** (2.20)
Age		1.176**** (34.19)	1.136**** (24.68)
Age squared		0.998**** (-29.34)	0.999**** (-24.60)
Schooling		.	.
Nursery school/preschool		1.063 (0.52)	0.983 (-0.15)
Grade 9		1.067 (0.48)	1.020 (0.15)
Grade 10		0.648**** (-3.47)	0.804* (-1.76)
Grade 11		0.866 (-1.22)	0.765** (-2.33)
12th grade - no diploma		1.161 (1.29)	1.026 (0.23)
Regular high school diploma		1.447**** (3.85)	1.268** (2.53)
GED or alternative credential		1.163 (1.46)	1.079 (0.76)
Some college, but less than 1 year		1.567**** (4.54)	1.327*** (2.92)
1 or more years college credit, no degree		1.709**** (5.56)	1.431**** (3.80)
Associate's degree		1.769**** (5.81)	1.459**** (3.94)
Bachelor's degree		2.873**** (11.02)	2.126**** (8.04)
Master's degree		3.635**** (13.06)	2.524**** (9.56)
Professional degree beyond a bachelor's degree		3.413**** (10.03)	2.341**** (7.15)
Doctorate degree		4.198**** (10.02)	2.746**** (7.30)
NRCS region		.	.
Northeast		1.018 (0.78)	0.927*** (-2.86)
Southeast		0.937*** (-2.74)	0.946** (-2.31)
West		0.999 (-0.04)	0.897**** (-4.31)
Admin. & Supportive Services		.	.

Independent Variables	Specification		
	Model A	Model B	Model C
		.	.
Interest and dividend income (log)			1.015****
			(6.73)
Home is owned free and clear			1.033
			(1.57)
Property value			1.000****
			(12.45)
Married, spouse present			1.464****
			(19.36)
Number of children in family			0.967****
			(-3.90)
Number of workers in family			0.841****
			(-14.20)
Lived in same house 1 year ago			0.966
			(-1.51)
Foreign born			1.146***
			(3.18)
Years in U.S., if immigrant			1.009****
			(5.71)
Speaks English well or very well			1.101****
			(3.58)
Veteran			0.988
			(-0.35)
Statewide general population			1.000
			(-0.35)
Statewide unemployment rate			1.026**
			(2.08)
Statewide government FTEs			1.000
			(0.28)
Statewide per capita income (log)			1.696****
			(7.11)
Constant	41867.982****	560.133****	4.663*
	(430.89)	(46.49)	(1.89)
Adj. R-squared	0.046	0.277	0.311
Number of Obs.	15054	15054	14834

Source and Notes: See Table 4.1. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.2D. Annual Wage Earnings Regressions, NAICS 5613, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
MBE or WBE?	.	.	.
MBE	0.575**** (-35.80)	0.692**** (-25.95)	0.700**** (-23.23)
WBE	1.034** (1.99)	0.897**** (-7.05)	0.871**** (-9.17)
Year	1.074**** (16.17)	1.054**** (13.15)	1.021*** (3.28)
Age		1.132**** (38.77)	1.101**** (28.05)
Age squared		0.999**** (-33.77)	0.999**** (-28.92)
Schooling		.	.
Nursery school/preschool		1.019 (0.29)	1.023 (0.36)
Grade 9		0.831** (-2.56)	0.908 (-1.36)
Grade 10		0.729**** (-4.59)	0.785**** (-3.58)
Grade 11		0.813**** (-3.29)	0.895* (-1.78)
12th grade - no diploma		0.858** (-2.34)	0.907 (-1.52)
Regular high school diploma		1.160*** (2.78)	1.186*** (3.23)
GED or alternative credential		0.884** (-2.13)	0.956 (-0.78)
Some college, but less than 1 year		1.232**** (3.72)	1.248**** (4.00)
1 or more years college credit, no degree		1.548**** (8.10)	1.550**** (8.22)
Associate's degree		1.735**** (9.94)	1.658**** (9.25)
Bachelor's degree		3.144**** (21.43)	2.656**** (18.49)
Master's degree		3.412**** (21.67)	2.769**** (18.22)
Professional degree beyond a bachelor's degree		4.746**** (20.65)	3.582**** (17.34)
Doctorate degree		4.044**** (14.42)	3.185**** (12.38)
NRCS region		.	.
Northeast		0.996 (-0.26)	0.964** (-2.05)
Southeast		0.967** (-2.12)	1.023 (1.33)
West		1.046*** (2.77)	0.924**** (-4.41)
Admin. & Supportive Services		.	.

Independent Variables	Specification		
	Model A	Model B	Model C
		.	.
Interest and dividend income (log)			1.015****
			(8.04)
Home is owned free and clear			1.038***
			(2.74)
Property value			1.000****
			(18.71)
Married, spouse present			1.521****
			(30.54)
Number of children in family			0.980****
			(-3.57)
Number of workers in family			0.854****
			(-18.59)
Lived in same house 1 year ago			1.025*
			(1.70)
Foreign born			1.230****
			(7.15)
Years in U.S., if immigrant			1.008****
			(7.85)
Speaks English well or very well			1.111****
			(6.02)
Veteran			0.948**
			(-2.00)
Statewide general population			1.000
			(0.67)
Statewide unemployment rate			0.970****
			(-3.52)
Statewide government FTEs			1.000
			(1.02)
Statewide per capita income (log)			1.447****
			(7.09)
Constant	20597.922****	879.993****	37.400****
	(557.17)	(82.28)	(6.38)
Adj. R-squared	0.050	0.235	0.273
Number of Obs.	44918	44918	43585

Source and Notes: See Table 4.1. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.2E. Annual Wage Earnings Regressions, All Plaintiff NAICS, Detailed Race, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
Detailed Race/Ethnicity	.	.	.
	.	.	.
Black	0.316**** (-96.56)	0.522**** (-61.16)	0.590**** (-49.38)
Hispanic	0.425**** (-73.64)	0.745**** (-27.82)	0.776**** (-21.56)
Asian Pacific	0.786**** (-13.78)	0.757**** (-18.44)	0.765**** (-16.51)
Subcontinent Asian	1.205**** (8.53)	0.898**** (-5.69)	0.914**** (-4.42)
Alaska Native	0.384**** (-18.13)	0.625**** (-10.39)	0.691**** (-8.24)
Other race	0.562**** (-7.34)	0.682**** (-5.71)	0.690**** (-5.70)
Two or more races	0.551**** (-22.97)	0.697**** (-16.18)	0.730**** (-14.52)
Non-Hispanic white female?	.	.	.
	.	.	.
Non-Hispanic white female	0.697**** (-42.02)	0.725**** (-43.77)	0.738**** (-41.97)
Year	1.052**** (20.58)	1.034**** (15.69)	1.008** (2.42)
Age		1.159**** (82.78)	1.125**** (60.28)
Age squared		0.998**** (-73.15)	0.999**** (-61.62)
Schooling		.	.
		.	.
Nursery school/preschool		0.955 (-0.96)	0.966 (-0.73)
Grade 9		0.850*** (-2.99)	0.886** (-2.27)
Grade 10		0.742**** (-5.79)	0.776**** (-5.01)
Grade 11		0.860*** (-3.19)	0.868*** (-3.04)
12th grade - no diploma		0.994 (-0.13)	0.982 (-0.39)
Regular high school diploma		1.326**** (7.17)	1.266**** (6.07)
GED or alternative credential		1.037 (0.86)	1.038 (0.88)
Some college, but less than 1 year		1.446**** (9.08)	1.361**** (7.69)
1 or more years college credit, no degree		1.690**** (13.31)	1.574**** (11.66)
Associate's degree		1.777**** (14.33)	1.610**** (12.05)
Bachelor's degree		2.921**** (27.46)	2.413**** (22.86)
Master's degree		3.337****	2.633****

Independent Variables	Specification		
	Model A	Model B	Model C
		(30.48)	(24.80)
Professional degree beyond a bachelor's degree		3.812****	2.906****
		(30.08)	(24.39)
Doctorate degree		3.525****	2.751****
		(27.67)	(22.66)
NRCS region		.	.
		.	.
Northeast		1.043****	0.953****
		(4.96)	(-4.92)
Southeast		0.999	1.033****
		(-0.16)	(3.60)
West		0.972***	0.886****
		(-3.14)	(-12.80)
Admin. & Supportive Services		0.618****	0.670****
		(-71.97)	(-61.25)
Interest and dividend income (log)			1.011****
			(15.62)
Home is owned free and clear			1.059****
			(7.44)
Property value			1.000****
			(32.05)
Married, spouse present			1.418****
			(46.13)
Number of children in family			0.972****
			(-8.98)
Number of workers in family			0.833****
			(-38.07)
Lived in same house 1 year ago			1.005
			(0.59)
Foreign born			1.155****
			(8.85)
Years in U.S., if immigrant			1.008****
			(14.10)
Speaks English well or very well			0.997
			(-0.30)
Veteran			1.012
			(0.87)
Statewide general population			1.000***
			(-2.76)
Statewide unemployment rate			0.993
			(-1.56)
Statewide government FTEs			1.000****
			(4.46)
Statewide per capita income (log)			1.743****
			(20.28)
Constant	47572.246****	1008.711****	5.749****
	(1141.22)	(128.94)	(5.82)
Adj. R-squared	0.096	0.340	0.363
Number of Obs.	126364	126364	124529

Source and Notes: See Table 4.1. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.2F. Annual Wage Earnings Regressions, NAICS 5416, Detailed Race, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
Detailed Race/Ethnicity	.	.	.
	.	.	.
Black	0.534**** (-34.41)	0.601**** (-30.32)	0.665**** (-24.47)
Hispanic	0.551**** (-37.77)	0.713**** (-22.89)	0.760**** (-17.13)
Asian Pacific	0.731**** (-16.73)	0.754**** (-16.22)	0.779**** (-13.16)
Subcontinent Asian	0.999 (-0.05)	0.896**** (-5.53)	0.946** (-2.48)
Alaska Native	0.570**** (-7.19)	0.707**** (-4.86)	0.757**** (-4.01)
Other race	0.706**** (-3.59)	0.773*** (-2.91)	0.805** (-2.52)
Two or more races	0.628**** (-15.02)	0.714**** (-11.90)	0.742**** (-10.78)
Non-Hispanic white female?	.	.	.
	.	.	.
Non-Hispanic white female	0.641**** (-46.53)	0.667**** (-46.26)	0.689**** (-43.03)
Year	1.019**** (6.55)	1.018**** (6.87)	0.993 (-1.62)
Age		1.177**** (68.34)	1.146**** (50.35)
Age squared		0.998**** (-62.13)	0.998**** (-51.01)
Schooling		.	.
		.	.
Nursery school/preschool		1.043 (0.36)	1.076 (0.66)
Grade 9		0.823 (-1.53)	0.802* (-1.78)
Grade 10		0.740** (-2.50)	0.746** (-2.51)
Grade 11		0.806** (-1.97)	0.819* (-1.88)
12th grade - no diploma		1.004 (0.04)	0.991 (-0.09)
Regular high school diploma		1.115 (1.25)	1.091 (1.03)
GED or alternative credential		1.062 (0.65)	1.038 (0.42)
Some college, but less than 1 year		1.204** (2.11)	1.167* (1.81)
1 or more years college credit, no degree		1.292*** (2.97)	1.236** (2.52)
Associate's degree		1.303*** (3.05)	1.222** (2.38)
Bachelor's degree		2.097**** (8.64)	1.797**** (7.03)
Master's degree		2.436****	2.000****

Independent Variables	Specification		
	Model A	Model B	Model C
		(10.37)	(8.30)
Professional degree beyond a bachelor's degree		2.693****	2.145****
		(11.18)	(8.85)
Doctorate degree		2.537****	2.080****
		(10.50)	(8.49)
NRCS region		.	.
		.	.
Northeast		1.055****	0.940****
		(5.06)	(-4.99)
Southeast		0.990	1.022**
		(-0.88)	(1.98)
West		0.949****	0.863****
		(-4.61)	(-12.51)
Profess., Tech. & Sci. Services		.	.
		.	.
Interest and dividend income (log)			1.010****
			(12.96)
Home is owned free and clear			1.025**
			(2.36)
Property value			1.000****
			(27.82)
Married, spouse present			1.312****
			(27.36)
Number of children in family			0.972****
			(-6.68)
Number of workers in family			0.821****
			(-30.55)
Lived in same house 1 year ago			0.987
			(-1.26)
Foreign born			1.101****
			(4.57)
Years in U.S., if immigrant			1.006****
			(7.72)
Speaks English well or very well			0.959***
			(-3.08)
Veteran			1.042**
			(2.50)
Statewide general population			1.000***
			(-2.78)
Statewide unemployment rate			0.998
			(-0.31)
Statewide government FTEs			1.000****
			(3.39)
Statewide per capita income (log)			1.855****
			(17.94)
Constant	74653.882****	1063.269****	3.260***
	(1033.57)	(70.06)	(3.07)
Adj. R-squared	0.052	0.210	0.235
Number of Obs.	66392	66392	66110

Source and Notes: See Table 4.1. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.2G. Annual Wage Earnings Regressions, NAICS 561M, Detailed Race, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
Detailed Race/Ethnicity	.	.	.
	.	.	.
Black	0.482**** (-21.89)	0.581**** (-18.37)	0.665**** (-13.78)
Hispanic	0.519**** (-22.72)	0.735**** (-11.45)	0.748**** (-9.41)
Asian Pacific	0.749**** (-5.91)	0.694**** (-8.44)	0.697**** (-7.71)
Subcontinent Asian	1.045 (0.53)	0.834** (-2.52)	0.812*** (-2.78)
Alaska Native	0.628*** (-3.25)	0.696*** (-2.89)	0.719*** (-2.67)
Other race	0.555*** (-2.68)	0.608*** (-2.60)	0.617*** (-2.64)
Two or more races	0.597**** (-6.95)	0.699**** (-5.51)	0.730**** (-5.05)
Non-Hispanic white female?	.	.	.
	.	.	.
Non-Hispanic white female	0.715**** (-14.90)	0.671**** (-20.22)	0.687**** (-19.54)
Year	1.031**** (4.63)	1.028**** (4.95)	1.020** (2.23)
Age		1.176**** (34.22)	1.136**** (24.69)
Age squared		0.998**** (-29.34)	0.999**** (-24.66)
Schooling		.	.
		.	.
Nursery school/preschool		1.043 (0.36)	0.975 (-0.22)
Grade 9		1.065 (0.47)	1.018 (0.14)
Grade 10		0.669*** (-3.21)	0.814* (-1.66)
Grade 11		0.901 (-0.89)	0.779** (-2.17)
12th grade - no diploma		1.195 (1.54)	1.040 (0.35)
Regular high school diploma		1.502**** (4.23)	1.289*** (2.70)
GED or alternative credential		1.206* (1.82)	1.097 (0.92)
Some college, but less than 1 year		1.636**** (4.97)	1.354*** (3.12)
1 or more years college credit, no degree		1.782**** (5.98)	1.460**** (4.00)
Associate's degree		1.844**** (6.23)	1.490**** (4.15)
Bachelor's degree		2.979**** (11.39)	2.170**** (8.24)
Master's degree		3.743****	2.571****

Independent Variables	Specification		
	Model A	Model B	Model C
		(13.34)	(9.72)
Professional degree beyond a bachelor's degree		3.498****	2.380****
		(10.23)	(7.28)
Doctorate degree		4.261****	2.795****
		(10.12)	(7.42)
NRCS region		.	.
		.	.
Northeast		1.028	0.930***
		(1.20)	(-2.73)
Southeast		0.956*	0.953**
		(-1.90)	(-2.01)
West		0.986	0.895****
		(-0.60)	(-4.38)
Admin. & Supportive Services		.	.
		.	.
Interest and dividend income (log)			1.015****
			(6.63)
Home is owned free and clear			1.029
			(1.40)
Property value			1.000****
			(12.53)
Married, spouse present			1.458****
			(19.13)
Number of children in family			0.966****
			(-3.92)
Number of workers in family			0.841****
			(-14.18)
Lived in same house 1 year ago			0.966
			(-1.49)
Foreign born			1.144***
			(3.11)
Years in U.S., if immigrant			1.010****
			(5.92)
Speaks English well or very well			1.069**
			(2.34)
Veteran			0.991
			(-0.26)
Statewide general population			1.000
			(-0.55)
Statewide unemployment rate			1.027**
			(2.17)
Statewide government FTEs			1.000
			(0.44)
Statewide per capita income (log)			1.694****
			(7.09)
Constant	41942.840****	536.586****	4.559*
	(432.69)	(46.19)	(1.87)
Adj. R-squared	0.054	0.280	0.312
Number of Obs.	15054	15054	14834

Source and Notes: See Table 4.1. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.2H. Annual Wage Earnings Regressions, NAICS 5613, Detailed Race, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
Detailed Race/Ethnicity	.	.	.
	.	.	.
Black	0.458**** (-42.26)	0.562**** (-33.69)	0.626**** (-26.89)
Hispanic	0.611**** (-25.60)	0.841**** (-9.41)	0.852**** (-7.51)
Asian Pacific	0.997 (-0.07)	0.813**** (-6.41)	0.786**** (-7.00)
Subcontinent Asian	1.465**** (7.11)	0.956 (-0.92)	0.883** (-2.45)
Alaska Native	0.503**** (-9.11)	0.635**** (-6.66)	0.712**** (-4.97)
Other race	0.668*** (-3.14)	0.679**** (-3.35)	0.637**** (-3.99)
Two or more races	0.665**** (-9.20)	0.735**** (-7.69)	0.759**** (-7.05)
Non-Hispanic white female?	.	.	.
	.	.	.
Non-Hispanic white female	1.035** (2.02)	0.895**** (-7.24)	0.869**** (-9.35)
Year	1.072**** (15.94)	1.052**** (12.88)	1.022**** (3.44)
Age		1.132**** (38.94)	1.101**** (28.10)
Age squared		0.999**** (-33.79)	0.999**** (-29.13)
Schooling		.	.
		.	.
Nursery school/preschool		0.960 (-0.64)	0.975 (-0.39)
Grade 9		0.835** (-2.50)	0.900 (-1.49)
Grade 10		0.776**** (-3.69)	0.804*** (-3.22)
Grade 11		0.883** (-1.98)	0.925 (-1.26)
12th grade - no diploma		0.909 (-1.47)	0.935 (-1.05)
Regular high school diploma		1.253**** (4.22)	1.231**** (3.93)
GED or alternative credential		0.960 (-0.71)	0.991 (-0.16)
Some college, but less than 1 year		1.340**** (5.24)	1.299**** (4.73)
1 or more years college credit, no degree		1.687**** (9.72)	1.619**** (9.04)
Associate's degree		1.867**** (11.29)	1.725**** (9.97)
Bachelor's degree		3.326**** (22.53)	2.756**** (19.16)
Master's degree		3.569****	2.879****

Independent Variables	Specification		
	Model A	Model B	Model C
		(22.46)	(18.84)
Professional degree beyond a bachelor's degree		4.941****	3.708****
		(21.27)	(17.82)
Doctorate degree		4.287****	3.378****
		(15.08)	(13.01)
NRCS region		.	.
		.	.
Northeast		1.016	0.976
		(1.02)	(-1.36)
Southeast		1.016	1.049***
		(1.02)	(2.82)
West		0.994	0.905****
		(-0.34)	(-5.55)
Admin. & Supportive Services		.	.
		.	.
Interest and dividend income (log)			1.015****
			(7.80)
Home is owned free and clear			1.027**
			(1.96)
Property value			1.000****
			(19.01)
Married, spouse present			1.506****
			(29.80)
Number of children in family			0.980****
			(-3.46)
Number of workers in family			0.852****
			(-18.93)
Lived in same house 1 year ago			1.027*
			(1.81)
Foreign born			1.196****
			(6.14)
Years in U.S., if immigrant			1.009****
			(8.86)
Speaks English well or very well			1.009
			(0.47)
Veteran			0.949*
			(-1.96)
Statewide general population			1.000
			(0.02)
Statewide unemployment rate			0.972***
			(-3.24)
Statewide government FTEs			1.000
			(1.39)
Statewide per capita income (log)			1.423****
			(6.77)
Constant	20701.721****	813.534****	42.177****
	(562.91)	(81.63)	(6.60)
Adj. R-squared	0.068	0.243	0.277
Number of Obs.	44918	44918	43585

Source and Notes: See Table 4.1. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.3A. Business Formation Regressions, Construction, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
MBE or WBE?	.	.	.
MBE	-0.482**** (-58.73)	-0.373**** (-40.46)	-0.496**** (-41.65)
WBE	-0.546**** (-36.43)	-0.652**** (-42.39)	-0.662**** (-42.40)
Year	-0.011**** (-4.34)	-0.010**** (-3.67)	-0.043**** (-10.52)
Age		0.125**** (50.35)	0.101**** (37.57)
Age squared		-0.001**** (-33.05)	-0.001**** (-23.96)
Schooling		.	.
Nursery school/preschool		-0.073** (-2.34)	-0.105**** (-3.31)
Grade 9		-0.034 (-0.94)	-0.037 (-1.02)
Grade 10		-0.016 (-0.44)	0.034 (0.96)
Grade 11		-0.083** (-2.38)	-0.028 (-0.79)
12th grade - no diploma		0.001 (0.02)	0.015 (0.43)
Regular high school diploma		-0.113**** (-4.05)	-0.073** (-2.58)
GED or alternative credential		-0.108**** (-3.48)	-0.034 (-1.07)
Some college, but less than 1 year		-0.024 (-0.80)	0.003 (0.11)
1 or more years college credit, no degree		-0.029 (-1.02)	-0.006 (-0.19)
Associate's degree		-0.123**** (-4.03)	-0.122**** (-3.91)
Bachelor's degree		-0.060** (-2.04)	-0.163**** (-5.37)
Master's degree		-0.166**** (-4.33)	-0.336**** (-8.54)
Professional degree beyond a bachelor's degree		0.033 (0.46)	-0.190** (-2.58)
Doctorate degree		-0.193 (-1.54)	-0.341*** (-2.67)
NRCS region		.	.
Northeast		-0.033*** (-3.26)	0.078**** (6.12)
Southeast		0.066**** (6.42)	0.124**** (10.89)
West		-0.013 (-1.19)	-0.003 (-0.27)
Construction		.	.

Independent Variables	Specification		
	Model A	Model B	Model C
		.	.
Interest and dividend income (log)			0.035****
			(33.53)
Home is owned free and clear			0.004
			(0.41)
Property value			0.000****
			(28.29)
Married, spouse present			0.125****
			(13.42)
Number of children in family			0.081****
			(21.93)
Number of workers in family			-0.067****
			(-11.75)
Lived in same house 1 year ago			0.119****
			(9.27)
Foreign born			0.233****
			(10.68)
Years in U.S., if immigrant			0.004****
			(4.89)
Speaks English well or very well			0.243****
			(19.33)
Veteran			-0.243****
			(-15.42)
Statewide general population			0.000****
			(9.85)
Statewide unemployment rate			-0.078****
			(-13.42)
Statewide government FTEs			-0.000****
			(-8.14)
Statewide per capita income (log)			-0.382****
			(-10.65)
Constant	-0.904****	-4.417****	0.460
	(-103.15)	(-73.35)	(1.17)
Pseudo R-squared	0.009	0.055	0.066
Number of Obs.	424047	424047	418943

Source and Notes: See Table 4.3. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.3B. Business Formation Regressions, AECRS, 2014-2018

Independent Variables	Specification Model A	Model B	Model C
MBE or WBE?	.	.	.
MBE	-0.516**** (-15.39)	-0.374**** (-10.73)	-0.420**** (-10.00)
WBE	-0.468**** (-14.09)	-0.394**** (-11.57)	-0.436**** (-12.53)
Year	-0.015* (-1.79)	-0.012 (-1.36)	0.026* (1.87)
Age		0.189**** (18.01)	0.156**** (13.55)
Age squared		-0.001**** (-12.64)	-0.001**** (-9.17)
Schooling		.	.
Nursery school/preschool		-0.432 (-0.91)	-0.425 (-0.89)
Grade 9		0.696 (1.62)	0.735* (1.70)
Grade 10		0.093 (0.22)	0.034 (0.08)
Grade 11		-0.107 (-0.25)	-0.086 (-0.20)
12th grade - no diploma		-0.062 (-0.16)	-0.067 (-0.17)
Regular high school diploma		-0.079 (-0.24)	-0.018 (-0.05)
GED or alternative credential		0.009 (0.03)	0.085 (0.25)
Some college, but less than 1 year		0.022 (0.07)	0.076 (0.23)
1 or more years college credit, no degree		0.145 (0.45)	0.192 (0.59)
Associate's degree		0.115 (0.35)	0.153 (0.47)
Bachelor's degree		0.360 (1.12)	0.270 (0.83)
Master's degree		0.298 (0.93)	0.174 (0.54)
Professional degree beyond a bachelor's degree		0.977*** (2.98)	0.795** (2.41)
Doctorate degree		0.280 (0.84)	0.094 (0.28)
NRCS region		.	.
Northeast		0.062* (1.65)	0.067 (1.45)
Southeast		0.105*** (2.76)	0.100** (2.47)
West		0.398**** (10.85)	0.255**** (6.21)
Profess., Tech. & Sci. Services		.	.

Independent Variables	Specification		
	Model A	Model B	Model C
		.	.
Interest and dividend income (log)			0.013****
			(5.48)
Home is owned free and clear			-0.192****
			(-4.61)
Property value			0.000****
			(16.50)
Married, spouse present			0.047
			(1.31)
Number of children in family			0.116****
			(8.23)
Number of workers in family			-0.010
			(-0.49)
Lived in same house 1 year ago			0.117**
			(2.48)
Foreign born			0.060
			(0.74)
Years in U.S., if immigrant			0.006**
			(2.25)
Speaks English well or very well			0.110**
			(2.13)
Veteran			-0.688****
			(-12.96)
Statewide general population			0.000****
			(3.87)
Statewide unemployment rate			0.064***
			(3.28)
Statewide government FTEs			-0.000****
			(-3.56)
Statewide per capita income (log)			-0.192
			(-1.60)
Constant	-1.850****	-7.889****	-5.672****
	(-62.63)	(-19.59)	(-4.16)
Pseudo R-squared	0.008	0.080	0.094
Number of Obs.	69864	69864	69323

Source and Notes: See Table 4.3. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.3C. Business Formation Regressions, Professional Services ex AECRS, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
MBE or WBE?	.	.	.
MBE	-0.581**** (-76.11)	-0.490**** (-59.00)	-0.518**** (-52.31)
WBE	-0.198**** (-27.28)	-0.173**** (-22.92)	-0.171**** (-22.06)
Year	-0.012**** (-5.58)	-0.010**** (-4.23)	-0.009** (-2.55)
Age		0.113**** (52.26)	0.077**** (32.10)
Age squared		-0.001**** (-31.31)	-0.000**** (-17.81)
Schooling		.	.
Nursery school/preschool		0.149**** (3.90)	0.120*** (3.12)
Grade 9		0.190**** (4.15)	0.166**** (3.59)
Grade 10		0.118*** (2.61)	0.120*** (2.61)
Grade 11		0.066 (1.54)	0.078* (1.77)
12th grade - no diploma		-0.045 (-1.05)	-0.058 (-1.34)
Regular high school diploma		-0.317**** (-9.40)	-0.297**** (-8.69)
GED or alternative credential		-0.309**** (-8.11)	-0.255**** (-6.58)
Some college, but less than 1 year		-0.374**** (-10.53)	-0.363**** (-10.04)
1 or more years college credit, no degree		-0.251**** (-7.41)	-0.238**** (-6.91)
Associate's degree		-0.382**** (-10.97)	-0.376**** (-10.62)
Bachelor's degree		-0.178**** (-5.32)	-0.238**** (-6.99)
Master's degree		-0.211**** (-6.16)	-0.312**** (-8.92)
Professional degree beyond a bachelor's degree		0.658**** (18.83)	0.530**** (14.87)
Doctorate degree		0.053 (1.37)	-0.066* (-1.68)
NRCS region		.	.
Northeast		-0.130**** (-13.88)	-0.009 (-0.82)
Southeast		0.086**** (9.07)	0.107**** (10.60)
West		0.202**** (21.76)	0.189**** (17.98)
Management of Companies		-2.407****	-2.429****

Independent Variables	Specification		
	Model A	Model B	Model C
		(-31.59)	(-31.75)
Admin. & Supportive Services		0.122****	0.177****
		(15.64)	(22.19)
Interest and dividend income (log)			0.020****
			(27.28)
Home is owned free and clear			0.078****
			(8.77)
Property value			0.000****
			(19.71)
Married, spouse present			0.096****
			(11.52)
Number of children in family			0.092****
			(26.50)
Number of workers in family			-0.003
			(-0.60)
Lived in same house 1 year ago			0.133****
			(12.49)
Foreign born			0.254****
			(13.85)
Years in U.S., if immigrant			0.009****
			(14.87)
Speaks English well or very well			0.098****
			(8.73)
Veteran			-0.413****
			(-25.66)
Statewide general population			0.000****
			(8.14)
Statewide unemployment rate			-0.028****
			(-5.41)
Statewide government FTEs			-0.000****
			(-3.43)
Statewide per capita income (log)			-0.512****
			(-16.35)
Constant	-1.211****	-4.574****	1.323****
	(-149.55)	(-78.70)	(3.85)
Pseudo R-squared	0.009	0.074	0.082
Number of Obs.	705758	705758	693999

Source and Notes: See Table 4.3. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.3D. Business Formation Regressions, General Services, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
MBE or WBE?	.	.	.
MBE	-0.494**** (-121.89)	-0.330**** (-73.90)	-0.424**** (-79.48)
WBE	-0.427**** (-110.66)	-0.165**** (-39.27)	-0.161**** (-37.10)
Year	-0.002** (-2.01)	-0.001 (-0.83)	-0.025**** (-12.96)
Age		0.138**** (127.62)	0.111**** (91.92)
Age squared		-0.001**** (-91.85)	-0.001**** (-66.76)
Schooling		.	.
Nursery school/preschool		0.125**** (6.16)	0.076**** (3.69)
Grade 9		0.077*** (3.20)	0.061** (2.50)
Grade 10		0.016 (0.67)	0.042* (1.79)
Grade 11		-0.070*** (-3.19)	-0.035 (-1.58)
12th grade - no diploma		-0.004 (-0.20)	0.003 (0.15)
Regular high school diploma		-0.158**** (-9.18)	-0.114**** (-6.47)
GED or alternative credential		-0.204**** (-10.51)	-0.121**** (-6.08)
Some college, but less than 1 year		-0.106**** (-5.86)	-0.068**** (-3.66)
1 or more years college credit, no degree		-0.043** (-2.46)	-0.002 (-0.09)
Associate's degree		-0.209**** (-11.73)	-0.192**** (-10.54)
Bachelor's degree		0.032* (1.88)	-0.035** (-2.00)
Master's degree		-0.009 (-0.50)	-0.137**** (-7.52)
Professional degree beyond a bachelor's degree		1.170**** (63.33)	0.990**** (52.23)
Doctorate degree		0.614**** (29.84)	0.435**** (20.75)
NRCS region		.	.
Northeast		-0.122**** (-24.65)	-0.054**** (-8.71)
Southeast		0.061**** (12.17)	0.099**** (18.19)
West		0.250**** (50.54)	0.198**** (35.08)
Warehousing		-1.017****	-1.005****

Independent Variables	Specification		
	Model A	Model B	Model C
		(-51.47)	(-50.51)
Information		-0.648****	-0.710****
		(-53.62)	(-57.92)
Finance & Insurance		-1.095****	-1.187****
		(-105.33)	(-112.68)
Real Estate		0.714****	0.652****
		(74.94)	(67.51)
Profess., Tech. & Sci. Services		0.137****	0.074****
		(17.14)	(9.13)
Management of Companies		-2.140****	-2.234****
		(-28.01)	(-29.06)
Admin. & Supportive Services		0.419****	0.438****
		(50.12)	(51.75)
Educational Services		-1.134****	-1.126****
		(-99.51)	(-97.47)
Medical Services		-1.282****	-1.310****
		(-143.03)	(-144.36)
Social Assistance Services		0.253****	0.307****
		(24.39)	(29.10)
Arts & Entertainment		-0.361****	-0.350****
		(-42.67)	(-40.87)
Other Services		0.872****	0.870****
		(110.97)	(109.55)
Interest and dividend income (log)			0.027****
			(65.75)
Home is owned free and clear			0.069****
			(14.64)
Property value			0.000****
			(66.71)
Married, spouse present			0.142****
			(32.00)
Number of children in family			0.075****
			(40.48)
Number of workers in family			-0.065****
			(-23.02)
Lived in same house 1 year ago			0.090****
			(15.65)
Foreign born			0.308****
			(32.22)
Years in U.S., if immigrant			0.004****
			(11.05)
Speaks English well or very well			0.088****
			(14.96)
Veteran			-0.326****
			(-36.16)
Statewide general population			0.000****
			(13.82)
Statewide unemployment rate			-0.053****
			(-19.57)
Statewide government FTEs			-0.000****
			(-5.66)

Independent Variables	Specification		
	Model A	Model B	Model C
Statewide per capita income (log)			-0.246****
			(-14.50)
Constant	-1.730****	-5.438****	-2.089****
	(-394.31)	(-182.16)	(-11.23)
Pseudo R-squared	0.007	0.128	0.136
Number of Obs.	3738400	3738400	3634589

Source and Notes: See Table 4.3. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.3E. Business Formation Regressions, Goods, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
MBE or WBE?	.	.	.
MBE	-0.373**** (-42.90)	-0.378**** (-40.31)	-0.604**** (-51.63)
WBE	-0.050**** (-5.97)	-0.250**** (-28.69)	-0.218**** (-24.33)
Year	-0.001 (-0.42)	0.000 (0.14)	-0.038**** (-9.31)
Age		0.168**** (71.15)	0.119**** (45.64)
Age squared		-0.001**** (-52.02)	-0.001**** (-32.28)
Schooling		.	.
Nursery school/preschool		0.193**** (4.79)	0.171**** (4.18)
Grade 9		-0.070 (-1.41)	-0.009 (-0.17)
Grade 10		-0.258**** (-5.42)	-0.146*** (-3.01)
Grade 11		-0.397**** (-8.63)	-0.251**** (-5.36)
12th grade - no diploma		-0.073* (-1.75)	-0.004 (-0.09)
Regular high school diploma		-0.334**** (-9.75)	-0.212**** (-6.05)
GED or alternative credential		-0.469**** (-12.05)	-0.305**** (-7.68)
Some college, but less than 1 year		-0.149**** (-4.17)	-0.051 (-1.39)
1 or more years college credit, no degree		-0.023 (-0.68)	0.054 (1.53)
Associate's degree		-0.056 (-1.57)	-0.008 (-0.22)
Bachelor's degree		0.283**** (8.28)	0.148**** (4.20)
Master's degree		0.154**** (4.22)	-0.168**** (-4.48)
Professional degree beyond a bachelor's degree		0.348**** (7.16)	-0.010 (-0.20)
Doctorate degree		-0.090 (-1.60)	-0.577**** (-10.09)
NRCS region		.	.
Northeast		0.035**** (3.49)	0.073**** (5.94)
Southeast		0.112**** (10.87)	0.193**** (16.82)
West		0.336**** (32.61)	0.235**** (19.79)
Manufacturing-NAICS 32		-0.422****	-0.450****

Independent Variables	Specification		
	Model A	Model B	Model C
		(-21.33)	(-22.49)
Manufacturing-NAICS 33		-0.564****	-0.609****
		(-32.38)	(-34.50)
Wholesale Trade		0.469****	0.406****
		(27.13)	(23.13)
Retail Trade-NAICS 44		0.419****	0.427****
		(25.95)	(26.12)
Retail Trade-NAICS 45		0.934****	0.997****
		(56.55)	(59.44)
Interest and dividend income (log)			0.039****
			(46.99)
Home is owned free and clear			0.143****
			(13.65)
Property value			0.000****
			(55.58)
Married, spouse present			0.444****
			(46.55)
Number of children in family			0.107****
			(27.79)
Number of workers in family			-0.075****
			(-13.22)
Lived in same house 1 year ago			0.064****
			(4.84)
Foreign born			0.418****
			(20.44)
Years in U.S., if immigrant			0.002***
			(3.28)
Speaks English well or very well			0.297****
			(23.30)
Veteran			-0.379****
			(-20.63)
Statewide general population			0.000***
			(3.16)
Statewide unemployment rate			-0.070****
			(-12.13)
Statewide government FTEs			0.000
			(0.35)
Statewide per capita income (log)			-0.140****
			(-3.97)
Constant	-2.809****	-7.581****	-5.019****
	(-314.19)	(-119.01)	(-13.00)
Pseudo R-squared	0.003	0.082	0.106
Number of Obs.	1695118	1695118	1664343

Source and Notes: See Table 4.3. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.3F. Business Formation Regressions, All Industries, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
MBE or WBE?	.	.	.
MBE	-0.531**** (-166.03)	-0.417**** (-115.33)	-0.517**** (-117.46)
WBE	-0.439**** (-139.40)	-0.248**** (-70.09)	-0.239**** (-66.06)
Year	-0.001 (-0.68)	-0.003*** (-2.59)	-0.037**** (-23.47)
Age		0.138**** (155.85)	0.109**** (111.08)
Age squared		-0.001**** (-110.16)	-0.001**** (-78.43)
Schooling		.	.
Nursery school/preschool		0.009 (0.60)	-0.029* (-1.85)
Grade 9		0.040** (2.20)	0.033* (1.79)
Grade 10		0.033* (1.88)	0.061**** (3.46)
Grade 11		-0.049*** (-2.90)	-0.014 (-0.80)
12th grade - no diploma		0.067**** (4.08)	0.069**** (4.17)
Regular high school diploma		-0.056**** (-4.19)	-0.023* (-1.71)
GED or alternative credential		-0.129**** (-8.64)	-0.055**** (-3.64)
Some college, but less than 1 year		0.016 (1.15)	0.038*** (2.68)
1 or more years college credit, no degree		0.082**** (6.10)	0.102**** (7.45)
Associate's degree		-0.031** (-2.22)	-0.037*** (-2.65)
Bachelor's degree		0.191**** (14.30)	0.083**** (6.07)
Master's degree		0.119**** (8.46)	-0.067**** (-4.69)
Professional degree beyond a bachelor's degree		1.218**** (81.64)	0.976**** (63.80)
Doctorate degree		0.654**** (38.03)	0.405**** (23.12)
NRCS region		.	.
Northeast		-0.115**** (-29.08)	-0.038**** (-7.85)
Southeast		0.023**** (5.73)	0.082**** (18.60)
West		0.161**** (40.38)	0.128**** (28.23)
NAICS sector		.	.

Independent Variables	Specification		
	Model A	Model B	Model C
		.	.
Extractive Industries		-2.745**** (-104.22)	-2.795**** (-105.13)
Utilities		-3.754**** (-100.69)	-3.798**** (-100.83)
Construction		-0.560**** (-71.28)	-0.572**** (-71.49)
Manufacturing-NAICS 31		-2.569**** (-158.35)	-2.558**** (-156.24)
Manufacturing-NAICS 32		-3.002**** (-202.61)	-3.015**** (-201.59)
Manufacturing-NAICS 33		-3.118**** (-271.51)	-3.140**** (-269.98)
Wholesale Trade		-2.073**** (-182.98)	-2.109**** (-183.56)
Retail Trade-NAICS 44		-2.183**** (-230.16)	-2.171**** (-225.46)
Retail Trade-NAICS 45		-1.657**** (-164.93)	-1.616**** (-158.18)
Transportation		-1.312**** (-136.55)	-1.285**** (-131.64)
Warehousing		-2.316**** (-116.34)	-2.274**** (-113.18)
Information		-1.969**** (-160.24)	-2.008**** (-160.42)
Finance & Insurance		-2.417**** (-227.33)	-2.497**** (-230.95)
Real Estate		-0.594**** (-60.62)	-0.634**** (-63.41)
Profess., Tech. & Sci. Services		-1.174**** (-142.24)	-1.214**** (-144.13)
Management of Companies		-3.461**** (-45.29)	-3.542**** (-46.01)
Admin. & Supportive Services		-0.861**** (-99.77)	-0.807**** (-91.75)
Educational Services		-2.431**** (-210.76)	-2.391**** (-203.58)
Medical Services		-2.569**** (-279.49)	-2.571**** (-274.44)
Social Assistance Services		-1.028**** (-97.08)	-0.937**** (-86.73)
Arts & Entertainment		-1.631**** (-188.39)	-1.586**** (-179.79)
Other Services		-0.415**** (-50.93)	-0.384**** (-46.22)
Public Administration		.	.
Interest and dividend income (log)			0.031**** (92.33)
Home is owned free and clear			0.084**** (21.87)

Independent Variables	Specification		
	Model A	Model B	Model C
Property value			0.000**** (94.03)
Married, spouse present			0.192**** (53.39)
Number of children in family			0.077**** (52.15)
Number of workers in family			-0.068**** (-30.05)
Lived in same house 1 year ago			0.097**** (20.16)
Foreign born			0.262**** (32.87)
Years in U.S., if immigrant			0.003**** (11.10)
Speaks English well or very well			0.179**** (37.16)
Veteran			-0.335**** (-47.65)
Statewide general population			0.000**** (17.52)
Statewide unemployment rate			-0.070**** (-31.73)
Statewide government FTEs			-0.000**** (-9.67)
Statewide per capita income (log)			-0.224**** (-16.38)
Constant	-1.815**** (-534.78)	-4.210**** (-176.47)	-0.977**** (-6.50)
Pseudo R-squared	0.008	0.148	0.159
Number of Obs.	6046247	6046246	5902242

Source and Notes: See Table 4.3. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.3G. Business Formation Regressions, Construction, Detailed Race, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
Detailed Race/Ethnicity	.	.	.
Black	-0.541**** (-27.42)	-0.585**** (-28.92)	-0.483**** (-23.13)
Hispanic	-0.502**** (-54.04)	-0.343**** (-31.73)	-0.557**** (-37.37)
Asian Pacific	-0.154**** (-5.10)	-0.197**** (-6.34)	-0.430**** (-12.88)
Subcontinent Asian	-0.315**** (-4.65)	-0.247**** (-3.54)	-0.524**** (-7.25)
Alaska Native	-0.616**** (-14.87)	-0.540**** (-12.73)	-0.549**** (-12.58)
Other race	-0.003 (-0.04)	0.150* (1.82)	0.027 (0.33)
Two or more races	-0.380**** (-11.48)	-0.216**** (-6.33)	-0.208**** (-5.99)
Non-Hispanic white female?	.	.	.
Non-Hispanic white female	-0.546**** (-36.43)	-0.652**** (-42.39)	-0.660**** (-42.29)
Year	-0.011**** (-4.42)	-0.010**** (-3.91)	-0.042**** (-10.29)
Age		0.125**** (50.36)	0.101**** (37.50)
Age squared		-0.001**** (-32.99)	-0.001**** (-23.96)
Schooling		.	.
Nursery school/preschool		-0.075** (-2.40)	-0.097*** (-3.05)
Grade 9		-0.027 (-0.75)	-0.034 (-0.93)
Grade 10		0.004 (0.11)	0.027 (0.76)
Grade 11		-0.058* (-1.68)	-0.036 (-1.02)
12th grade - no diploma		0.017 (0.50)	0.007 (0.21)
Regular high school diploma		-0.091*** (-3.25)	-0.084*** (-2.94)
GED or alternative credential		-0.085*** (-2.75)	-0.046 (-1.44)
Some college, but less than 1 year		-0.003 (-0.09)	-0.009 (-0.30)
1 or more years college credit, no degree		-0.005 (-0.18)	-0.019 (-0.64)
Associate's degree		-0.101**** (-3.31)	-0.135**** (-4.35)
Bachelor's degree		-0.044 (-1.50)	-0.178**** (-5.86)
Master's degree		-0.153****	-0.355****

Independent Variables	Specification		
	Model A	Model B	Model C
		(-3.96)	(-8.98)
Professional degree beyond a bachelor's degree		0.047	-0.203***
		(0.66)	(-2.76)
Doctorate degree		-0.184	-0.362***
		(-1.47)	(-2.83)
NRCS region		.	.
		.	.
Northeast		-0.030***	0.074****
		(-2.95)	(5.80)
Southeast		0.078****	0.120****
		(7.51)	(10.44)
West		-0.023**	-0.006
		(-2.12)	(-0.52)
Construction		.	.
		.	.
Interest and dividend income (log)			0.035****
			(33.45)
Home is owned free and clear			0.003
			(0.33)
Property value			0.000****
			(27.89)
Married, spouse present			0.125****
			(13.40)
Number of children in family			0.082****
			(22.12)
Number of workers in family			-0.067****
			(-11.66)
Lived in same house 1 year ago			0.120****
			(9.36)
Foreign born			0.254****
			(11.43)
Years in U.S., if immigrant			0.004****
			(5.04)
Speaks English well or very well			0.261****
			(20.28)
Veteran			-0.245****
			(-15.56)
Statewide general population			0.000****
			(10.21)
Statewide unemployment rate			-0.078****
			(-13.32)
Statewide government FTEs			-0.000****
			(-8.34)
Statewide per capita income (log)			-0.398****
			(-11.07)
Constant	-0.904****	-4.445****	0.640
	(-103.06)	(-73.68)	(1.63)
Pseudo R-squared	0.010	0.056	0.067
Number of Obs.	424047	424047	418943

Source and Notes: See Table 4.3. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.3H. Business Formation Regressions, AECRS, Detailed Race, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
Detailed Race/Ethnicity	.	.	.
Black	-0.671**** (-8.48)	-0.542**** (-6.72)	-0.472**** (-5.76)
Hispanic	-0.389**** (-8.02)	-0.158*** (-3.11)	-0.231**** (-3.99)
Asian Pacific	-0.613**** (-9.50)	-0.632**** (-9.48)	-0.786**** (-10.34)
Subcontinent Asian	-0.674**** (-6.24)	-0.449**** (-4.05)	-0.650**** (-5.39)
Alaska Native	-0.771*** (-2.78)	-0.746*** (-2.65)	-0.620** (-2.19)
Other race	-0.098 (-0.32)	0.025 (0.08)	0.059 (0.18)
Two or more races	-0.399**** (-3.95)	-0.152 (-1.46)	-0.170 (-1.60)
Non-Hispanic white female?	.	.	.
Non-Hispanic white female	-0.468**** (-14.08)	-0.393**** (-11.54)	-0.435**** (-12.50)
Year	-0.016* (-1.83)	-0.013 (-1.45)	0.027* (1.91)
Age		0.190**** (18.08)	0.156**** (13.56)
Age squared		-0.001**** (-12.70)	-0.001**** (-9.15)
Schooling		.	.
Nursery school/preschool		-0.495 (-1.04)	-0.496 (-1.04)
Grade 9		0.685 (1.59)	0.728* (1.68)
Grade 10		0.108 (0.25)	0.062 (0.14)
Grade 11		-0.078 (-0.18)	-0.043 (-0.10)
12th grade - no diploma		-0.055 (-0.14)	-0.054 (-0.14)
Regular high school diploma		-0.041 (-0.13)	0.032 (0.10)
GED or alternative credential		0.032 (0.09)	0.122 (0.35)
Some college, but less than 1 year		0.059 (0.18)	0.128 (0.39)
1 or more years college credit, no degree		0.184 (0.57)	0.244 (0.75)
Associate's degree		0.154 (0.48)	0.206 (0.63)
Bachelor's degree		0.408 (1.26)	0.331 (1.02)
Master's degree		0.350	0.238

Independent Variables	Specification		
	Model A	Model B	Model C
		(1.08)	(0.73)
Professional degree beyond a bachelor's degree		1.017***	0.846**
		(3.10)	(2.56)
Doctorate degree		0.353	0.175
		(1.06)	(0.52)
NRCS region		.	.
		.	.
Northeast		0.071*	0.066
		(1.89)	(1.44)
Southeast		0.108***	0.097**
		(2.84)	(2.40)
West		0.407****	0.264****
		(11.04)	(6.41)
Profess., Tech. & Sci. Services		.	.
		.	.
Interest and dividend income (log)			0.014****
			(5.61)
Home is owned free and clear			-0.183****
			(-4.38)
Property value			0.000****
			(16.51)
Married, spouse present			0.049
			(1.38)
Number of children in family			0.115****
			(8.15)
Number of workers in family			-0.011
			(-0.51)
Lived in same house 1 year ago			0.119**
			(2.53)
Foreign born			0.134*
			(1.66)
Years in U.S., if immigrant			0.006**
			(2.18)
Speaks English well or very well			0.096*
			(1.82)
Veteran			-0.690****
			(-12.99)
Statewide general population			0.000****
			(3.64)
Statewide unemployment rate			0.067****
			(3.42)
Statewide government FTEs			-0.000****
			(-3.36)
Statewide per capita income (log)			-0.177
			(-1.47)
Constant	-1.849****	-7.967****	-5.925****
	(-62.59)	(-19.74)	(-4.34)
Pseudo R-squared	0.008	0.081	0.095
Number of Obs.	69864	69864	69323

Source and Notes: See Table 4.3. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.3I. Business Formation Regressions, Professional Services ex AECRS, Detailed Race, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
Detailed Race/Ethnicity	.	.	.
Black	-0.882**** (-61.93)	-0.763**** (-51.61)	-0.675**** (-44.05)
Hispanic	-0.329**** (-34.35)	-0.218**** (-19.77)	-0.302**** (-23.11)
Asian Pacific	-0.699**** (-40.06)	-0.641**** (-35.38)	-0.779**** (-38.70)
Subcontinent Asian	-1.232**** (-49.11)	-1.017**** (-39.51)	-1.158**** (-41.30)
Alaska Native	-0.309**** (-6.34)	-0.208**** (-4.13)	-0.147*** (-2.87)
Other race	-0.211*** (-3.11)	-0.022 (-0.31)	-0.038 (-0.53)
Two or more races	-0.457**** (-18.46)	-0.220**** (-8.58)	-0.185**** (-7.10)
Non-Hispanic white female?	.	.	.
Non-Hispanic white female	-0.198**** (-27.28)	-0.173**** (-22.96)	-0.169**** (-21.83)
Year	-0.012**** (-5.62)	-0.010**** (-4.66)	-0.008** (-2.26)
Age		0.114**** (52.52)	0.078**** (32.81)
Age squared		-0.001**** (-31.48)	-0.000**** (-18.07)
Schooling		.	.
Nursery school/preschool		0.078** (2.03)	0.055 (1.42)
Grade 9		0.180**** (3.94)	0.157**** (3.40)
Grade 10		0.203**** (4.46)	0.202**** (4.39)
Grade 11		0.165**** (3.82)	0.170**** (3.86)
12th grade - no diploma		0.030 (0.70)	0.014 (0.33)
Regular high school diploma		-0.203**** (-5.99)	-0.188**** (-5.45)
GED or alternative credential		-0.193**** (-5.04)	-0.142**** (-3.65)
Some college, but less than 1 year		-0.251**** (-7.01)	-0.242**** (-6.64)
1 or more years college credit, no degree		-0.123**** (-3.61)	-0.116**** (-3.32)
Associate's degree		-0.254**** (-7.26)	-0.251**** (-7.04)
Bachelor's degree		-0.034 (-1.01)	-0.095*** (-2.77)
Master's degree		-0.033	-0.135****

Independent Variables	Specification		
	Model A	Model B	Model C
		(-0.97)	(-3.82)
Professional degree beyond a bachelor's degree		0.792****	0.661****
		(22.50)	(18.38)
Doctorate degree		0.214****	0.089**
		(5.46)	(2.23)
NRCS region		.	.
		.	.
Northeast		-0.113****	-0.004
		(-12.06)	(-0.30)
Southeast		0.105****	0.114****
		(11.02)	(11.24)
West		0.186****	0.181****
		(19.94)	(17.22)
Management of Companies		-2.417****	-2.439****
		(-31.72)	(-31.88)
Admin. & Supportive Services		0.113****	0.162****
		(14.39)	(20.21)
Interest and dividend income (log)			0.020****
			(27.55)
Home is owned free and clear			0.080****
			(8.96)
Property value			0.000****
			(20.89)
Married, spouse present			0.108****
			(12.92)
Number of children in family			0.087****
			(25.04)
Number of workers in family			-0.012**
			(-2.32)
Lived in same house 1 year ago			0.126****
			(11.81)
Foreign born			0.287****
			(15.68)
Years in U.S., if immigrant			0.008****
			(12.79)
Speaks English well or very well			0.085****
			(7.40)
Veteran			-0.411****
			(-25.53)
Statewide general population			0.000****
			(6.64)
Statewide unemployment rate			-0.025****
			(-4.79)
Statewide government FTEs			-0.000**
			(-2.25)
Statewide per capita income (log)			-0.513****
			(-16.37)
Constant	-1.211****	-4.727****	1.198****
	(-149.38)	(-81.03)	(3.48)
Pseudo R-squared	0.012	0.077	0.084
Number of Obs.	705758	705758	693999

Source and Notes: See Table 4.3. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.3J. Business Formation Regressions, General Services, Detailed Race, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
Detailed Race/Ethnicity	.	.	.
Black	-0.843**** (-119.88)	-0.582**** (-78.26)	-0.509**** (-65.79)
Hispanic	-0.371**** (-71.47)	-0.235**** (-39.76)	-0.375**** (-53.14)
Asian Pacific	-0.289**** (-37.40)	-0.242**** (-29.20)	-0.481**** (-50.28)
Subcontinent Asian	-0.466**** (-35.47)	-0.291**** (-21.22)	-0.575**** (-38.56)
Alaska Native	-0.647**** (-26.86)	-0.491**** (-19.57)	-0.417**** (-16.33)
Other race	-0.210**** (-6.06)	0.040 (1.08)	-0.042 (-1.14)
Two or more races	-0.490**** (-38.06)	-0.145**** (-10.69)	-0.134**** (-9.70)
Non-Hispanic white female?	.	.	.
Non-Hispanic white female	-0.427**** (-110.66)	-0.167**** (-39.71)	-0.161**** (-37.10)
Year	-0.003*** (-2.98)	-0.002 (-1.56)	-0.024**** (-12.47)
Age		0.138**** (127.56)	0.111**** (92.58)
Age squared		-0.001**** (-91.53)	-0.001**** (-67.05)
Schooling		.	.
Nursery school/preschool		0.103**** (5.08)	0.054*** (2.64)
Grade 9		0.080**** (3.32)	0.052** (2.13)
Grade 10		0.054** (2.33)	0.053** (2.24)
Grade 11		-0.020 (-0.92)	-0.023 (-1.01)
12th grade - no diploma		0.027 (1.26)	0.014 (0.66)
Regular high school diploma		-0.114**** (-6.59)	-0.100**** (-5.65)
GED or alternative credential		-0.161**** (-8.24)	-0.109**** (-5.46)
Some college, but less than 1 year		-0.060**** (-3.32)	-0.053*** (-2.88)
1 or more years college credit, no degree		0.007 (0.41)	0.014 (0.78)
Associate's degree		-0.165**** (-9.20)	-0.177**** (-9.67)
Bachelor's degree		0.072**** (4.18)	-0.017 (-0.97)
Master's degree		0.032* (1.56)	-0.113**** (-4.58)

Independent Variables	Specification		
	Model A	Model B	Model C
		(1.76)	(-6.20)
Professional degree beyond a bachelor's degree		1.205****	1.006****
		(65.00)	(52.95)
Doctorate degree		0.647****	0.456****
		(31.36)	(21.66)
NRCS region		.	.
		.	.
Northeast		-0.115****	-0.052****
		(-23.11)	(-8.50)
Southeast		0.082****	0.103****
		(16.08)	(18.90)
West		0.229****	0.192****
		(45.89)	(33.88)
Warehousing		-1.014****	-1.006****
		(-51.30)	(-50.53)
Information		-0.653****	-0.710****
		(-54.03)	(-57.95)
Finance & Insurance		-1.103****	-1.187****
		(-105.99)	(-112.72)
Real Estate		0.704****	0.647****
		(73.85)	(67.00)
Profess., Tech. & Sci. Services		0.127****	0.074****
		(15.87)	(9.11)
Management of Companies		-2.149****	-2.236****
		(-28.14)	(-29.09)
Admin. & Supportive Services		0.417****	0.433****
		(49.77)	(51.14)
Educational Services		-1.138****	-1.130****
		(-99.81)	(-97.75)
Medical Services		-1.283****	-1.308****
		(-142.98)	(-144.09)
Social Assistance Services		0.262****	0.307****
		(25.14)	(29.04)
Arts & Entertainment		-0.370****	-0.353****
		(-43.72)	(-41.20)
Other Services		0.861****	0.867****
		(109.40)	(109.00)
Interest and dividend income (log)			0.027****
			(65.58)
Home is owned free and clear			0.068****
			(14.40)
Property value			0.000****
			(67.16)
Married, spouse present			0.142****
			(31.88)
Number of children in family			0.074****
			(40.09)
Number of workers in family			-0.066****
			(-23.29)
Lived in same house 1 year ago			0.090****
			(15.59)

Independent Variables	Specification		
	Model A	Model B	Model C
Foreign born			0.316****
			(32.83)
Years in U.S., if immigrant			0.003****
			(9.95)
Speaks English well or very well			0.080****
			(13.34)
Veteran			-0.326****
			(-36.14)
Statewide general population			0.000****
			(12.87)
Statewide unemployment rate			-0.051****
			(-18.72)
Statewide government FTEs			-0.000****
			(-4.92)
Statewide per capita income (log)			-0.247****
			(-14.56)
Constant	-1.727****	-5.480****	-2.116****
	(-393.51)	(-183.28)	(-11.37)
Pseudo R-squared	0.009	0.129	0.136
Number of Obs.	3738400	3738400	3634589

Source and Notes: See Table 4.3. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.3K. Business Formation Regressions, Goods, Detailed Race, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
Detailed Race/Ethnicity	.	.	.
Black	-1.177**** (-56.80)	-1.139**** (-53.90)	-1.015**** (-46.23)
Hispanic	-0.425**** (-36.08)	-0.378**** (-29.19)	-0.628**** (-40.28)
Asian Pacific	0.162**** (10.35)	-0.016 (-0.95)	-0.451**** (-22.78)
Subcontinent Asian	0.481**** (20.60)	0.363**** (14.92)	-0.162**** (-5.89)
Alaska Native	0.002 (0.06)	-0.015 (-0.35)	0.111** (2.45)
Other race	-0.078 (-0.91)	-0.076 (-0.86)	-0.225** (-2.51)
Two or more races	-0.248**** (-8.44)	-0.141**** (-4.70)	-0.148**** (-4.80)
Non-Hispanic white female?	.	.	.
Non-Hispanic white female	-0.050**** (-5.97)	-0.254**** (-29.15)	-0.221**** (-24.61)
Year	-0.003 (-1.07)	-0.001 (-0.36)	-0.038**** (-9.21)
Age		0.167**** (70.48)	0.118**** (45.35)
Age squared		-0.001**** (-51.42)	-0.001**** (-32.40)
Schooling		.	.
Nursery school/preschool		0.236**** (5.83)	0.199**** (4.85)
Grade 9		-0.018 (-0.37)	0.003 (0.05)
Grade 10		-0.203**** (-4.26)	-0.160*** (-3.28)
Grade 11		-0.310**** (-6.72)	-0.252**** (-5.38)
12th grade - no diploma		-0.023 (-0.54)	-0.007 (-0.17)
Regular high school diploma		-0.264**** (-7.67)	-0.219**** (-6.23)
GED or alternative credential		-0.405**** (-10.39)	-0.318**** (-7.98)
Some college, but less than 1 year		-0.083** (-2.32)	-0.063* (-1.70)
1 or more years college credit, no degree		0.049 (1.41)	0.047 (1.32)
Associate's degree		0.001 (0.03)	-0.020 (-0.55)
Bachelor's degree		0.311**** (9.05)	0.127**** (3.60)
Master's degree		0.144****	-0.203****

Independent Variables	Specification		
	Model A	Model B	Model C
		(3.91)	(-5.38)
Professional degree beyond a bachelor's degree		0.349****	-0.033
		(7.17)	(-0.66)
Doctorate degree		-0.143**	-0.615****
		(-2.55)	(-10.73)
NRCS region		.	.
		.	.
Northeast		0.034****	0.076****
		(3.36)	(6.19)
Southeast		0.163****	0.216****
		(15.65)	(18.82)
West		0.286****	0.214****
		(27.41)	(17.94)
Manufacturing-NAICS 32		-0.431****	-0.459****
		(-21.76)	(-22.96)
Manufacturing-NAICS 33		-0.581****	-0.621****
		(-33.33)	(-35.15)
Wholesale Trade		0.454****	0.396****
		(26.24)	(22.55)
Retail Trade-NAICS 44		0.401****	0.411****
		(24.77)	(25.09)
Retail Trade-NAICS 45		0.933****	0.986****
		(56.39)	(58.76)
Interest and dividend income (log)			0.038****
			(46.14)
Home is owned free and clear			0.127****
			(12.05)
Property value			0.000****
			(54.78)
Married, spouse present			0.430****
			(44.97)
Number of children in family			0.110****
			(28.50)
Number of workers in family			-0.073****
			(-12.89)
Lived in same house 1 year ago			0.067****
			(5.11)
Foreign born			0.396****
			(19.09)
Years in U.S., if immigrant			0.004****
			(5.23)
Speaks English well or very well			0.266****
			(20.38)
Veteran			-0.378****
			(-20.54)
Statewide general population			0.000****
			(3.76)
Statewide unemployment rate			-0.069****
			(-11.87)
Statewide government FTEs			-0.000
			(-0.05)

Independent Variables	Specification		
	Model A	Model B	Model C
Statewide per capita income (log)			-0.143****
			(-4.07)
Constant	-2.804****	-7.581****	-4.975****
	(-313.64)	(-118.87)	(-12.87)
Pseudo R-squared	0.010	0.086	0.107
Number of Obs.	1695118	1695118	1664343

Source and Notes: See Table 4.3. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.3L. Business Formation Regressions, All Industries, Detailed Race, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
Detailed Race/Ethnicity	.	.	.
Black	-0.932**** (-152.25)	-0.711**** (-109.29)	-0.611**** (-90.57)
Hispanic	-0.433**** (-106.14)	-0.390**** (-82.15)	-0.548**** (-94.53)
Asian Pacific	-0.318**** (-48.41)	-0.221**** (-30.91)	-0.477**** (-57.88)
Subcontinent Asian	-0.404**** (-36.14)	-0.193**** (-16.36)	-0.504**** (-39.31)
Alaska Native	-0.457**** (-26.09)	-0.424**** (-22.92)	-0.361**** (-19.15)
Other race	-0.188**** (-6.46)	0.006 (0.18)	-0.076** (-2.42)
Two or more races	-0.489**** (-45.23)	-0.189**** (-16.46)	-0.174**** (-14.83)
Non-Hispanic white female?	.	.	.
Non-Hispanic white female	-0.439**** (-139.40)	-0.249**** (-70.47)	-0.240**** (-66.05)
Year	-0.002* (-1.77)	-0.003**** (-3.44)	-0.036**** (-22.96)
Age		0.138**** (155.61)	0.109**** (111.32)
Age squared		-0.001**** (-109.70)	-0.001**** (-78.73)
Schooling		.	.
Nursery school/preschool		0.016 (1.07)	-0.019 (-1.24)
Grade 9		0.056*** (3.11)	0.036** (1.99)
Grade 10		0.063**** (3.61)	0.057*** (3.20)
Grade 11		-0.007 (-0.42)	-0.017 (-0.96)
12th grade - no diploma		0.092**** (5.59)	0.067**** (4.01)
Regular high school diploma		-0.022* (-1.69)	-0.029** (-2.13)
GED or alternative credential		-0.096**** (-6.42)	-0.063**** (-4.13)
Some college, but less than 1 year		0.049**** (3.50)	0.030** (2.12)
1 or more years college credit, no degree		0.119**** (8.81)	0.095**** (6.92)
Associate's degree		-0.001 (-0.04)	-0.046*** (-3.24)
Bachelor's degree		0.210**** (15.66)	0.072**** (5.28)
Master's degree		0.131****	-0.078****

Independent Variables	Specification		
	Model A	Model B	Model C
		(9.32)	(-5.40)
Professional degree beyond a bachelor's degree		1.230****	0.965****
		(82.25)	(62.91)
Doctorate degree		0.655****	0.391****
		(38.03)	(22.27)
NRCS region		.	.
		.	.
Northeast		-0.112****	-0.038****
		(-28.17)	(-7.86)
Southeast		0.044****	0.087****
		(10.90)	(19.60)
West		0.136****	0.118****
		(33.98)	(25.92)
NAICS sector		.	.
		.	.
Extractive Industries		-2.746****	-2.798****
		(-104.26)	(-105.23)
Utilities		-3.753****	-3.799****
		(-100.65)	(-100.87)
Construction		-0.563****	-0.574****
		(-71.64)	(-71.73)
Manufacturing-NAICS 31		-2.567****	-2.557****
		(-158.18)	(-156.14)
Manufacturing-NAICS 32		-3.003****	-3.017****
		(-202.66)	(-201.64)
Manufacturing-NAICS 33		-3.123****	-3.143****
		(-271.77)	(-270.00)
Wholesale Trade		-2.079****	-2.111****
		(-183.36)	(-183.66)
Retail Trade-NAICS 44		-2.187****	-2.175****
		(-230.37)	(-225.61)
Retail Trade-NAICS 45		-1.654****	-1.618****
		(-164.43)	(-158.24)
Transportation		-1.303****	-1.285****
		(-135.43)	(-131.44)
Warehousing		-2.299****	-2.270****
		(-115.39)	(-112.91)
Information		-1.967****	-2.010****
		(-159.96)	(-160.47)
Finance & Insurance		-2.417****	-2.498****
		(-227.16)	(-230.90)
Real Estate		-0.593****	-0.636****
		(-60.42)	(-63.53)
Profess., Tech. & Sci. Services		-1.180****	-1.217****
		(-142.73)	(-144.28)
Management of Companies		-3.462****	-3.543****
		(-45.30)	(-46.03)
Admin. & Supportive Services		-0.847****	-0.804****
		(-98.04)	(-91.35)
Educational Services		-2.423****	-2.392****
		(-209.96)	(-203.53)

Independent Variables	Specification		
	Model A	Model B	Model C
Medical Services		-2.564**** (-278.32)	-2.572**** (-273.99)
Social Assistance Services		-1.006**** (-94.83)	-0.934**** (-86.33)
Arts & Entertainment		-1.634**** (-188.45)	-1.590**** (-180.00)
Other Services		-0.418**** (-51.18)	-0.387**** (-46.46)
Public Administration		.	.
Interest and dividend income (log)			0.031**** (91.68)
Home is owned free and clear			0.079**** (20.54)
Property value			0.000**** (93.22)
Married, spouse present			0.189**** (52.30)
Number of children in family			0.078**** (52.81)
Number of workers in family			-0.066**** (-29.53)
Lived in same house 1 year ago			0.098**** (20.48)
Foreign born			0.266**** (32.93)
Years in U.S., if immigrant			0.003**** (11.82)
Speaks English well or very well			0.181**** (36.53)
Veteran			-0.336**** (-47.74)
Statewide general population			0.000**** (17.90)
Statewide unemployment rate			-0.068**** (-30.96)
Statewide government FTEs			-0.000**** (-9.78)
Statewide per capita income (log)			-0.228**** (-16.63)
Constant	-1.812**** (-533.85)	-4.238**** (-177.25)	-0.953**** (-6.34)
Pseudo R-squared	0.010	0.149	0.159
Number of Obs.	6046247	6046246	5902242

Source and Notes: See Table 4.3. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.4A. Business Formation Regressions, All Plaintiff NAICS, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
MBE or WBE?	.	.	.
MBE	-0.929**** (-50.47)	-0.392**** (-19.18)	-0.351**** (-14.76)
WBE	-0.167**** (-10.56)	-0.034* (-1.96)	-0.029 (-1.63)
Year	0.013** (2.57)	-0.006 (-1.15)	-0.015* (-1.70)
Age		0.164**** (27.85)	0.136**** (20.78)
Age squared		-0.001**** (-17.94)	-0.001**** (-12.66)
Schooling		.	.
Nursery school/preschool		-0.387** (-2.01)	-0.499** (-2.55)
Grade 9		-0.014 (-0.07)	-0.036 (-0.17)
Grade 10		-0.282 (-1.34)	-0.347 (-1.62)
Grade 11		-0.303 (-1.54)	-0.375* (-1.87)
12th grade - no diploma		0.127 (0.74)	-0.019 (-0.11)
Regular high school diploma		-0.015 (-0.11)	-0.097 (-0.67)
GED or alternative credential		-0.048 (-0.31)	-0.091 (-0.58)
Some college, but less than 1 year		0.256* (1.76)	0.177 (1.21)
1 or more years college credit, no degree		0.482**** (3.38)	0.382**** (2.67)
Associate's degree		0.306** (2.13)	0.213 (1.47)
Bachelor's degree		0.632**** (4.47)	0.449**** (3.15)
Master's degree		0.778**** (5.49)	0.564**** (3.96)
Professional degree beyond a bachelor's degree		1.159**** (7.88)	0.902**** (6.08)
Doctorate degree		1.165**** (7.90)	0.941**** (6.34)
NRCS region		.	.
Northeast		-0.018 (-0.82)	0.117**** (4.31)
Southeast		0.083**** (3.61)	0.110**** (4.57)
West		0.460**** (20.58)	0.434**** (17.56)
Admin. & Supportive Services		-1.442****	-1.389****

Independent Variables	Specification		
	Model A	Model B	Model C
		(-73.55)	(-69.89)
Interest and dividend income (log)			0.017****
			(10.77)
Home is owned free and clear			-0.078****
			(-3.49)
Property value			0.000****
			(15.95)
Married, spouse present			0.137****
			(6.54)
Number of children in family			0.069****
			(7.82)
Number of workers in family			-0.035**
			(-2.53)
Lived in same house 1 year ago			0.049**
			(1.98)
Foreign born			-0.020
			(-0.44)
Years in U.S., if immigrant			0.003**
			(1.97)
Speaks English well or very well			0.049*
			(1.69)
Veteran			-0.402****
			(-11.44)
Statewide general population			0.000****
			(4.72)
Statewide unemployment rate			-0.042****
			(-3.52)
Statewide government FTEs			-0.000**
			(-2.28)
Statewide per capita income (log)			-0.552****
			(-7.53)
Constant	-1.230****	-6.476****	0.234
	(-67.61)	(-33.34)	(0.29)
Pseudo R-squared	0.022	0.185	0.189
Number of Obs.	140113	140113	136711

Source and Notes: See Table 4.3. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.4B. Business Formation Regressions, NAICS 5416, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
MBE or WBE?	.	.	.
MBE	-0.539**** (-25.03)	-0.287**** (-12.34)	-0.223**** (-8.28)
WBE	-0.094**** (-5.12)	-0.015 (-0.76)	-0.008 (-0.40)
Year	-0.012** (-2.01)	-0.010* (-1.67)	-0.001 (-0.05)
Age		0.161**** (23.99)	0.141**** (18.73)
Age squared		-0.001**** (-14.92)	-0.001**** (-11.02)
Schooling		.	.
Nursery school/preschool		-0.782*** (-2.73)	-0.876*** (-3.02)
Grade 9		-0.153 (-0.50)	-0.226 (-0.74)
Grade 10		-0.423 (-1.41)	-0.556* (-1.83)
Grade 11		-0.561** (-1.99)	-0.675** (-2.37)
12th grade - no diploma		-0.396* (-1.65)	-0.494** (-2.04)
Regular high school diploma		-0.467** (-2.37)	-0.544*** (-2.75)
GED or alternative credential		-0.315 (-1.49)	-0.394* (-1.85)
Some college, but less than 1 year		-0.225 (-1.13)	-0.289 (-1.45)
1 or more years college credit, no degree		0.020 (0.10)	-0.067 (-0.34)
Associate's degree		-0.230 (-1.17)	-0.299 (-1.51)
Bachelor's degree		0.075 (0.39)	-0.060 (-0.31)
Master's degree		0.236 (1.22)	0.086 (0.44)
Professional degree beyond a bachelor's degree		0.652*** (3.29)	0.462** (2.31)
Doctorate degree		0.655**** (3.30)	0.500** (2.50)
NRCS region		.	.
Northeast		-0.022 (-0.88)	0.148**** (4.85)
Southeast		0.074*** (2.84)	0.083*** (3.06)
West		0.483**** (19.06)	0.471**** (16.95)
Profess., Tech. & Sci. Services		.	.

Independent Variables	Specification		
	Model A	Model B	Model C
		.	.
Interest and dividend income (log)			0.014****
			(8.55)
Home is owned free and clear			-0.173****
			(-6.65)
Property value			0.000****
			(12.12)
Married, spouse present			0.086****
			(3.57)
Number of children in family			0.069****
			(6.94)
Number of workers in family			-0.043***
			(-2.73)
Lived in same house 1 year ago			0.028
			(1.01)
Foreign born			-0.074
			(-1.40)
Years in U.S., if immigrant			0.002
			(1.33)
Speaks English well or very well			0.004
			(0.13)
Veteran			-0.388****
			(-9.97)
Statewide general population			0.000****
			(4.97)
Statewide unemployment rate			-0.024*
			(-1.77)
Statewide government FTEs			-0.000***
			(-2.99)
Statewide per capita income (log)			-0.745****
			(-9.04)
Constant	-0.738****	-5.966****	2.631***
	(-34.94)	(-24.25)	(2.84)
Pseudo R-squared	0.008	0.107	0.113
Number of Obs.	75856	75856	75193

Source and Notes: See Table 4.3. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.4C. Business Formation Regressions, NAICS 561M, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
MBE or WBE?	.	.	.
MBE	-0.636**** (-10.22)	-0.419**** (-6.37)	-0.451**** (-5.80)
WBE	0.129** (2.46)	0.096* (1.78)	0.095* (1.70)
Year	-0.022 (-1.35)	-0.025 (-1.49)	-0.098**** (-3.62)
Age		0.161**** (8.98)	0.125**** (6.38)
Age squared		-0.001**** (-6.32)	-0.001**** (-4.08)
Schooling		.	.
Nursery school/preschool		0.088 (0.17)	-0.066 (-0.12)
Grade 9		0.914* (1.72)	0.917* (1.72)
Grade 10		-0.250 (-0.40)	-0.252 (-0.40)
Grade 11		0.615 (1.18)	0.614 (1.18)
12th grade - no diploma		1.025** (2.19)	0.662 (1.37)
Regular high school diploma		0.720* (1.68)	0.622 (1.45)
GED or alternative credential		0.534 (1.19)	0.472 (1.04)
Some college, but less than 1 year		1.134*** (2.63)	1.006** (2.32)
1 or more years college credit, no degree		1.222*** (2.87)	1.070** (2.50)
Associate's degree		1.083** (2.52)	0.922** (2.13)
Bachelor's degree		1.468**** (3.46)	1.159*** (2.71)
Master's degree		1.501**** (3.50)	1.075** (2.49)
Professional degree beyond a bachelor's degree		1.611**** (3.49)	1.142** (2.45)
Doctorate degree		1.460*** (2.96)	0.926* (1.85)
NRCS region		.	.
Northeast		-0.040 (-0.57)	-0.009 (-0.10)
Southeast		0.164** (2.30)	0.245*** (3.21)
West		0.473**** (6.83)	0.442**** (5.67)
Admin. & Supportive Services		.	.

Independent Variables	Specification		
	Model A	Model B	Model C
		.	.
Interest and dividend income (log)			0.026****
			(4.86)
Home is owned free and clear			-0.011
			(-0.16)
Property value			0.000****
			(6.75)
Married, spouse present			0.280****
			(4.38)
Number of children in family			0.085***
			(3.06)
Number of workers in family			-0.004
			(-0.10)
Lived in same house 1 year ago			-0.108
			(-1.36)
Foreign born			0.005
			(0.04)
Years in U.S., if immigrant			-0.001
			(-0.29)
Speaks English well or very well			0.153*
			(1.66)
Veteran			-0.599****
			(-5.01)
Statewide general population			-0.000
			(-0.75)
Statewide unemployment rate			-0.114***
			(-3.00)
Statewide government FTEs			0.000
			(1.29)
Statewide per capita income (log)			-0.095
			(-0.40)
Constant	-1.696****	-7.610****	-5.038*
	(-28.23)	(-13.04)	(-1.92)
Pseudo R-squared	0.014	0.084	0.099
Number of Obs.	16317	16317	15946

Source and Notes: See Table 4.3. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.4D. Business Formation Regressions, NAICS 5613, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
MBE or WBE?	.	.	.
MBE	-0.937**** (-15.88)	-0.689**** (-11.23)	-0.675**** (-9.32)
WBE	-0.094* (-1.73)	-0.217**** (-3.90)	-0.231**** (-4.01)
Year	0.032* (1.93)	0.015 (0.91)	-0.055** (-1.97)
Age		0.178**** (10.17)	0.140**** (7.29)
Age squared		-0.001**** (-7.40)	-0.001**** (-5.26)
Schooling		.	.
Nursery school/preschool		0.115 (0.33)	-0.089 (-0.25)
Grade 9		-0.297 (-0.68)	-0.280 (-0.64)
Grade 10		-0.051 (-0.13)	-0.029 (-0.07)
Grade 11		-0.316 (-0.83)	-0.318 (-0.81)
12th grade - no diploma		0.281 (0.81)	0.228 (0.65)
Regular high school diploma		-0.101 (-0.35)	-0.170 (-0.57)
GED or alternative credential		-0.296 (-0.92)	-0.246 (-0.75)
Some college, but less than 1 year		0.044 (0.15)	-0.040 (-0.13)
1 or more years college credit, no degree		0.345 (1.19)	0.259 (0.88)
Associate's degree		0.517* (1.77)	0.406 (1.37)
Bachelor's degree		0.974**** (3.41)	0.633** (2.19)
Master's degree		1.203**** (4.15)	0.797*** (2.71)
Professional degree beyond a bachelor's degree		1.357**** (4.28)	0.810** (2.51)
Doctorate degree		1.149*** (3.14)	0.771** (2.08)
NRCS region		.	.
Northeast		0.030 (0.45)	-0.004 (-0.05)
Southeast		0.068 (0.98)	0.197*** (2.61)
West		0.204*** (2.95)	0.030 (0.36)
Admin. & Supportive Services		.	.

Independent Variables	Specification		
	Model A	Model B	Model C
		.	.
Interest and dividend income (log)			0.025****
			(4.47)
Home is owned free and clear			0.107
			(1.63)
Property value			0.000****
			(12.32)
Married, spouse present			0.149**
			(2.44)
Number of children in family			0.131****
			(5.05)
Number of workers in family			-0.012
			(-0.29)
Lived in same house 1 year ago			0.303****
			(3.68)
Foreign born			0.157
			(1.10)
Years in U.S., if immigrant			0.005
			(1.13)
Speaks English well or very well			0.096
			(1.09)
Veteran			-0.348***
			(-2.95)
Statewide general population			-0.000
			(-0.48)
Statewide unemployment rate			-0.089**
			(-2.27)
Statewide government FTEs			0.000
			(1.49)
Statewide per capita income (log)			0.285
			(1.23)
Constant	-2.884****	-8.362****	-10.567****
	(-46.59)	(-17.26)	(-4.12)
Pseudo R-squared	0.020	0.095	0.121
Number of Obs.	47940	47940	45572

Source and Notes: See Table 4.3. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.4E. Business Formation Regressions, All Plaintiff NAICS, Detailed Race, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
Detailed Race/Ethnicity	.	.	.
Black	-1.215**** (-39.53)	-0.439**** (-13.05)	-0.333**** (-9.54)
Hispanic	-1.018**** (-36.18)	-0.292**** (-9.26)	-0.322**** (-9.07)
Asian Pacific	-0.540**** (-14.62)	-0.493**** (-12.30)	-0.561**** (-12.43)
Subcontinent Asian	-0.772**** (-15.04)	-0.724**** (-13.37)	-0.822**** (-13.68)
Alaska Native	-0.572**** (-5.02)	0.021 (0.17)	0.121 (0.96)
Other race	-0.409** (-2.56)	0.085 (0.48)	0.104 (0.59)
Two or more races	-0.445**** (-8.40)	-0.017 (-0.29)	0.028 (0.48)
Non-Hispanic white female?	.	.	.
Non-Hispanic white female	-0.167**** (-10.55)	-0.033* (-1.91)	-0.026 (-1.45)
Year	0.011** (2.27)	-0.006 (-1.16)	-0.015* (-1.68)
Age		0.165**** (28.00)	0.136**** (20.75)
Age squared		-0.001**** (-18.11)	-0.001**** (-12.64)
Schooling		.	.
Nursery school/preschool		-0.413** (-2.15)	-0.523*** (-2.67)
Grade 9		-0.028 (-0.13)	-0.051 (-0.24)
Grade 10		-0.269 (-1.27)	-0.322 (-1.50)
Grade 11		-0.289 (-1.47)	-0.356* (-1.78)
12th grade - no diploma		0.142 (0.83)	0.001 (0.00)
Regular high school diploma		0.008 (0.06)	-0.066 (-0.46)
GED or alternative credential		-0.032 (-0.20)	-0.064 (-0.41)
Some college, but less than 1 year		0.280* (1.92)	0.210 (1.43)
1 or more years college credit, no degree		0.505**** (3.54)	0.414**** (2.88)
Associate's degree		0.332** (2.30)	0.247* (1.70)
Bachelor's degree		0.667**** (4.71)	0.493**** (3.45)
Master's degree		0.824****	0.615****

Independent Variables	Specification		
	Model A	Model B	Model C
		(5.80)	(4.30)
Professional degree beyond a bachelor's degree		1.201****	0.949****
		(8.15)	(6.38)
Doctorate degree		1.210****	0.984****
		(8.18)	(6.60)
NRCS region		.	.
		.	.
Northeast		-0.013	0.117****
		(-0.59)	(4.31)
Southeast		0.084****	0.107****
		(3.65)	(4.41)
West		0.456****	0.431****
		(20.25)	(17.39)
Admin. & Supportive Services		-1.444****	-1.394****
		(-73.46)	(-69.99)
Interest and dividend income (log)			0.017****
			(11.00)
Home is owned free and clear			-0.072***
			(-3.19)
Property value			0.000****
			(15.98)
Married, spouse present			0.148****
			(7.02)
Number of children in family			0.067****
			(7.60)
Number of workers in family			-0.037***
			(-2.71)
Lived in same house 1 year ago			0.046*
			(1.85)
Foreign born			0.059
			(1.25)
Years in U.S., if immigrant			0.003*
			(1.77)
Speaks English well or very well			0.081***
			(2.71)
Veteran			-0.409****
			(-11.64)
Statewide general population			0.000****
			(4.64)
Statewide unemployment rate			-0.041****
			(-3.47)
Statewide government FTEs			-0.000**
			(-2.17)
Statewide per capita income (log)			-0.549****
			(-7.47)
Constant	-1.225****	-6.527****	0.159
	(-67.36)	(-33.55)	(0.19)
Pseudo R-squared	0.025	0.186	0.190
Number of Obs.	140113	140113	136711

Source and Notes: See Table 4.3. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.4F. Business Formation Regressions, NAICS 5416, Detailed Race, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
Detailed Race/Ethnicity	.	.	.
Black	-0.419**** (-11.02)	-0.189**** (-4.68)	-0.107** (-2.57)
Hispanic	-0.509**** (-15.09)	-0.165**** (-4.52)	-0.183**** (-4.50)
Asian Pacific	-0.588**** (-14.23)	-0.475**** (-10.75)	-0.492**** (-9.91)
Subcontinent Asian	-1.025**** (-18.44)	-0.734**** (-12.62)	-0.797**** (-12.31)
Alaska Native	-0.015 (-0.10)	0.111 (0.70)	0.196 (1.23)
Other race	-0.356* (-1.77)	-0.039 (-0.18)	-0.013 (-0.06)
Two or more races	-0.220**** (-3.59)	0.083 (1.25)	0.117* (1.76)
Non-Hispanic white female?	.	.	.
Non-Hispanic white female	-0.094**** (-5.12)	-0.014 (-0.73)	-0.004 (-0.20)
Year	-0.011* (-1.95)	-0.010 (-1.63)	-0.001 (-0.08)
Age		0.162**** (24.11)	0.139**** (18.57)
Age squared		-0.001**** (-15.10)	-0.001**** (-10.91)
Schooling		.	.
Nursery school/preschool		-0.816*** (-2.85)	-0.906*** (-3.12)
Grade 9		-0.189 (-0.62)	-0.262 (-0.86)
Grade 10		-0.430 (-1.43)	-0.551* (-1.81)
Grade 11		-0.580** (-2.05)	-0.673** (-2.36)
12th grade - no diploma		-0.390 (-1.62)	-0.481** (-1.99)
Regular high school diploma		-0.459** (-2.32)	-0.520*** (-2.62)
GED or alternative credential		-0.321 (-1.51)	-0.378* (-1.78)
Some college, but less than 1 year		-0.217 (-1.09)	-0.264 (-1.32)
1 or more years college credit, no degree		0.029 (0.15)	-0.043 (-0.22)
Associate's degree		-0.218 (-1.10)	-0.272 (-1.37)
Bachelor's degree		0.105 (0.54)	-0.018 (-0.09)
Master's degree		0.281	0.134

Independent Variables	Specification		
	Model A	Model B	Model C
		(1.44)	(0.69)
Professional degree beyond a bachelor's degree		0.691****	0.506**
		(3.47)	(2.52)
Doctorate degree		0.701****	0.539****
		(3.52)	(2.69)
NRCS region		.	.
		.	.
Northeast		-0.017	0.148****
		(-0.66)	(4.83)
Southeast		0.068***	0.075***
		(2.62)	(2.76)
West		0.489****	0.474****
		(19.16)	(17.00)
Profess., Tech. & Sci. Services		.	.
		.	.
Interest and dividend income (log)			0.015****
			(8.90)
Home is owned free and clear			-0.163****
			(-6.27)
Property value			0.000****
			(12.20)
Married, spouse present			0.105****
			(4.32)
Number of children in family			0.067****
			(6.69)
Number of workers in family			-0.047***
			(-3.00)
Lived in same house 1 year ago			0.024
			(0.84)
Foreign born			0.034
			(0.64)
Years in U.S., if immigrant			0.002
			(1.20)
Speaks English well or very well			0.050
			(1.47)
Veteran			-0.400****
			(-10.27)
Statewide general population			0.000****
			(4.95)
Statewide unemployment rate			-0.024*
			(-1.78)
Statewide government FTEs			-0.000***
			(-2.95)
Statewide per capita income (log)			-0.736****
			(-8.91)
Constant	-0.739****	-6.008****	2.518****
	(-34.97)	(-24.37)	(2.71)
Pseudo R-squared	0.009	0.108	0.115
Number of Obs.	75856	75856	75193

Source and Notes: See Table 4.3. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.4G. Business Formation Regressions, NAICS 561M, Detailed Race, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
Detailed Race/Ethnicity	.	.	.
	.	.	.
Black	-0.774**** (-7.60)	-0.552**** (-5.25)	-0.388**** (-3.52)
Hispanic	-0.834**** (-9.24)	-0.498**** (-5.15)	-0.638**** (-5.69)
Asian Pacific	-0.211* (-1.68)	-0.280** (-2.14)	-0.619**** (-4.00)
Subcontinent Asian	-0.426* (-1.83)	-0.391 (-1.63)	-0.811*** (-3.13)
Alaska Native	0.257 (0.83)	0.267 (0.83)	0.291 (0.89)
Other race	0.571 (1.32)	0.685 (1.49)	0.685 (1.47)
Two or more races	-0.314 (-1.59)	-0.098 (-0.48)	-0.067 (-0.33)
Non-Hispanic white female?	.	.	.
	.	.	.
Non-Hispanic white female	0.129** (2.46)	0.097* (1.79)	0.095* (1.70)
Year	-0.021 (-1.31)	-0.024 (-1.44)	-0.098**** (-3.63)
Age		0.161**** (8.97)	0.125**** (6.37)
Age squared		-0.001**** (-6.32)	-0.001**** (-4.06)
Schooling		.	.
		.	.
Nursery school/preschool		0.119 (0.22)	-0.048 (-0.09)
Grade 9		0.928* (1.75)	0.902* (1.69)
Grade 10		-0.256 (-0.41)	-0.296 (-0.47)
Grade 11		0.618 (1.19)	0.560 (1.07)
12th grade - no diploma		1.017** (2.17)	0.616 (1.28)
Regular high school diploma		0.705* (1.65)	0.563 (1.31)
GED or alternative credential		0.512 (1.14)	0.410 (0.90)
Some college, but less than 1 year		1.118*** (2.59)	0.945** (2.18)
1 or more years college credit, no degree		1.200*** (2.81)	1.002** (2.33)
Associate's degree		1.059** (2.46)	0.852** (1.97)
Bachelor's degree		1.442**** (3.39)	1.097** (2.56)
Master's degree		1.473****	1.012**

Independent Variables	Specification		
	Model A	Model B	Model C
		(3.43)	(2.33)
Professional degree beyond a bachelor's degree		1.578****	1.077**
		(3.41)	(2.30)
Doctorate degree		1.419***	0.873*
		(2.87)	(1.74)
NRCS region		.	.
		.	.
Northeast		-0.043	-0.013
		(-0.60)	(-0.15)
Southeast		0.173**	0.240****
		(2.42)	(3.14)
West		0.456****	0.435****
		(6.54)	(5.55)
Admin. & Supportive Services		.	.
		.	.
Interest and dividend income (log)			0.026****
			(4.83)
Home is owned free and clear			-0.004
			(-0.05)
Property value			0.000****
			(6.69)
Married, spouse present			0.282****
			(4.39)
Number of children in family			0.085***
			(3.07)
Number of workers in family			-0.002
			(-0.05)
Lived in same house 1 year ago			-0.109
			(-1.36)
Foreign born			0.045
			(0.30)
Years in U.S., if immigrant			-0.002
			(-0.41)
Speaks English well or very well			0.229**
			(2.38)
Veteran			-0.609****
			(-5.09)
Statewide general population			-0.000
			(-0.62)
Statewide unemployment rate			-0.116***
			(-3.07)
Statewide government FTEs			0.000
			(1.22)
Statewide per capita income (log)			-0.099
			(-0.42)
Constant	-1.698****	-7.588****	-4.920*
	(-28.24)	(-12.99)	(-1.87)
Pseudo R-squared	0.016	0.086	0.101
Number of Obs.	16317	16317	15946

Source and Notes: See Table 4.3. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.4H. Business Formation Regressions, NAICS 5613, Detailed Race, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
Detailed Race/Ethnicity	.	.	.
Black	-1.174**** (-13.99)	-0.902**** (-10.45)	-0.778**** (-8.42)
Hispanic	-0.969**** (-11.66)	-0.582**** (-6.53)	-0.624**** (-5.88)
Asian Pacific	-0.577**** (-4.05)	-0.740**** (-5.09)	-0.937**** (-5.72)
Subcontinent Asian	-0.112 (-0.63)	-0.344* (-1.89)	-0.543*** (-2.66)
Alaska Native	-0.518* (-1.75)	-0.213 (-0.71)	-0.047 (-0.15)
Other race	0.052 (0.13)	0.205 (0.51)	0.118 (0.28)
Two or more races	-0.579*** (-3.29)	-0.348* (-1.94)	-0.298 (-1.61)
Non-Hispanic white female?	.	.	.
Non-Hispanic white female	-0.094* (-1.73)	-0.218**** (-3.92)	-0.232**** (-4.02)
Year	0.030* (1.85)	0.014 (0.84)	-0.054* (-1.93)
Age		0.179**** (10.18)	0.140**** (7.29)
Age squared		-0.001**** (-7.39)	-0.001**** (-5.25)
Schooling		.	.
Nursery school/preschool		0.085 (0.24)	-0.112 (-0.32)
Grade 9		-0.296 (-0.67)	-0.286 (-0.65)
Grade 10		-0.012 (-0.03)	-0.002 (-0.01)
Grade 11		-0.257 (-0.68)	-0.293 (-0.74)
12th grade - no diploma		0.318 (0.92)	0.248 (0.71)
Regular high school diploma		-0.056 (-0.19)	-0.145 (-0.49)
GED or alternative credential		-0.251 (-0.78)	-0.225 (-0.68)
Some college, but less than 1 year		0.089 (0.29)	-0.017 (-0.06)
1 or more years college credit, no degree		0.389 (1.34)	0.284 (0.96)
Associate's degree		0.556* (1.90)	0.430 (1.45)
Bachelor's degree		1.007**** (3.51)	0.663** (2.28)
Master's degree		1.229****	0.824***

Independent Variables	Specification		
	Model A	Model B	Model C
		(4.22)	(2.78)
Professional degree beyond a bachelor's degree		1.381****	0.837***
		(4.34)	(2.58)
Doctorate degree		1.176***	0.800**
		(3.20)	(2.15)
NRCS region		.	.
		.	.
Northeast		0.037	-0.002
		(0.55)	(-0.03)
Southeast		0.090	0.206***
		(1.30)	(2.71)
West		0.183***	0.025
		(2.62)	(0.31)
Admin. & Supportive Services		.	.
		.	.
Interest and dividend income (log)			0.025****
			(4.43)
Home is owned free and clear			0.105
			(1.60)
Property value			0.000****
			(12.24)
Married, spouse present			0.143**
			(2.33)
Number of children in family			0.131****
			(5.05)
Number of workers in family			-0.009
			(-0.23)
Lived in same house 1 year ago			0.305****
			(3.70)
Foreign born			0.183
			(1.27)
Years in U.S., if immigrant			0.005
			(1.14)
Speaks English well or very well			0.079
			(0.86)
Veteran			-0.347***
			(-2.94)
Statewide general population			-0.000
			(-0.55)
Statewide unemployment rate			-0.085**
			(-2.16)
Statewide government FTEs			0.000
			(1.58)
Statewide per capita income (log)			0.284
			(1.22)
Constant	-2.880****	-8.415****	-10.623****
	(-46.55)	(-17.33)	(-4.14)
Pseudo R-squared	0.023	0.096	0.122
Number of Obs.	47940	47940	45572

Source and Notes: See Table 4.3. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.5A. Annual Business Owner Earnings Regressions, Construction, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
MBE or WBE?	.	.	.
MBE	0.827**** (-16.56)	0.842**** (-13.92)	0.799**** (-14.63)
WBE	0.544**** (-25.22)	0.532**** (-26.23)	0.532**** (-26.64)
Year	1.032**** (8.85)	1.034**** (9.55)	1.002 (0.31)
Age		1.121**** (33.73)	1.082**** (22.27)
Age squared		0.999**** (-31.25)	0.999**** (-22.61)
Schooling		.	.
Nursery school/preschool		1.168**** (3.75)	1.130*** (2.99)
Grade 9		1.033 (0.68)	1.058 (1.22)
Grade 10		0.927 (-1.62)	0.976 (-0.52)
Grade 11		0.961 (-0.86)	1.023 (0.51)
12th grade - no diploma		1.094** (1.99)	1.097** (2.07)
Regular high school diploma		1.143**** (3.59)	1.171**** (4.28)
GED or alternative credential		0.921** (-2.01)	0.989 (-0.26)
Some college, but less than 1 year		1.041 (0.99)	1.059 (1.44)
1 or more years college credit, no degree		1.116*** (2.85)	1.138**** (3.39)
Associate's degree		1.067 (1.57)	1.060 (1.44)
Bachelor's degree		1.216**** (4.93)	1.126*** (3.01)
Master's degree		1.335**** (5.49)	1.188**** (3.30)
Professional degree beyond a bachelor's degree		1.291*** (2.71)	1.131 (1.32)
Doctorate degree		0.917 (-0.51)	0.869 (-0.85)
NRCS region		.	.
Northeast		1.046*** (3.28)	1.025 (1.48)
Southeast		0.925**** (-5.60)	0.998 (-0.14)
West		1.085**** (5.71)	1.011 (0.68)
Construction		.	.

Independent Variables	Specification		
	Model A	Model B	Model C
		.	.
Interest and dividend income (log)			1.006****
			(4.64)
Home is owned free and clear			1.024*
			(1.83)
Property value			1.000****
			(23.98)
Married, spouse present			1.357****
			(25.14)
Number of children in family			1.042****
			(8.64)
Number of workers in family			0.928****
			(-9.80)
Lived in same house 1 year ago			1.089****
			(5.04)
Foreign born			1.238****
			(7.29)
Years in U.S., if immigrant			1.005****
			(4.67)
Speaks English well or very well			1.104****
			(6.10)
Veteran			0.892****
			(-5.51)
Statewide general population			1.000*
			(1.79)
Statewide unemployment rate			0.968****
			(-4.18)
Statewide government FTEs			1.000
			(-0.82)
Statewide per capita income (log)			1.333****
			(6.11)
Constant	18836.117****	1274.946****	109.364****
	(803.52)	(87.31)	(9.11)
Adj. R-squared	0.011	0.034	0.062
Number of Obs.	77023	77023	76687

Source and Notes: See Table 4.5. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.5B. Annual Business Owner Earnings Regressions, AECRS, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
MBE or WBE?	.	.	.
MBE	0.700**** (-5.73)	0.761**** (-4.45)	0.722**** (-4.64)
WBE	0.540**** (-10.38)	0.571**** (-9.67)	0.554**** (-10.20)
Year	0.990 (-0.61)	0.997 (-0.20)	0.999 (-0.04)
Age		1.206**** (11.49)	1.158**** (8.20)
Age squared		0.998**** (-9.46)	0.999**** (-7.11)
Schooling		.	.
Nursery school/preschool		2.643 (1.13)	2.725 (1.17)
Grade 9		1.541 (0.49)	1.653 (0.57)
Grade 10		1.490 (0.47)	1.497 (0.48)
Grade 11		0.901 (-0.13)	0.834 (-0.23)
12th grade - no diploma		2.863 (1.38)	2.699 (1.31)
Regular high school diploma		1.852 (0.94)	1.883 (0.98)
GED or alternative credential		1.414 (0.50)	1.499 (0.60)
Some college, but less than 1 year		1.827 (0.92)	1.881 (0.97)
1 or more years college credit, no degree		1.640 (0.76)	1.677 (0.80)
Associate's degree		1.431 (0.55)	1.443 (0.57)
Bachelor's degree		1.962 (1.04)	1.819 (0.93)
Master's degree		1.932 (1.02)	1.722 (0.85)
Professional degree beyond a bachelor's degree		2.443 (1.36)	2.102 (1.14)
Doctorate degree		2.594 (1.43)	2.235 (1.22)
NRCS region		.	.
Northeast		1.081 (1.20)	0.995 (-0.06)
Southeast		1.041 (0.60)	1.090 (1.21)
West		1.183*** (2.68)	1.037 (0.52)
Profess., Tech. & Sci. Services		.	.

Independent Variables	Specification		
	Model A	Model B	Model C
		.	.
Interest and dividend income (log)			0.998
			(-0.49)
Home is owned free and clear			1.046
			(0.66)
Property value			1.000****
			(6.73)
Married, spouse present			1.272****
			(3.96)
Number of children in family			1.051**
			(2.07)
Number of workers in family			0.918**
			(-2.24)
Lived in same house 1 year ago			0.986
			(-0.18)
Foreign born			1.075
			(0.52)
Years in U.S., if immigrant			1.009*
			(1.75)
Speaks English well or very well			1.242**
			(2.46)
Veteran			0.670****
			(-4.34)
Statewide general population			1.000
			(0.27)
Statewide unemployment rate			1.039
			(1.14)
Statewide government FTEs			1.000
			(-0.08)
Statewide per capita income (log)			1.567**
			(2.15)
Constant	21598.654****	74.188****	0.908
	(181.89)	(5.82)	(-0.04)
Adj. R-squared	0.019	0.081	0.097
Number of Obs.	6266	6266	6256

Source and Notes: See Table 4.5. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.5C. Annual Business Owner Earnings Regressions, Professional Services ex AECRS, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
MBE or WBE?	.	.	.
	.	.	.
MBE	0.642**** (-32.66)	0.763**** (-19.71)	0.730**** (-20.08)
WBE	0.646**** (-34.68)	0.639**** (-37.19)	0.646**** (-36.24)
Year	1.015**** (3.88)	1.017**** (4.67)	1.004 (0.63)
Age		1.176**** (48.71)	1.135**** (35.02)
Age squared		0.998**** (-41.27)	0.999**** (-32.33)
Schooling		.	.
		.	.
Nursery school/preschool		1.041 (0.67)	1.017 (0.29)
Grade 9		0.881* (-1.79)	0.877* (-1.87)
Grade 10		0.648**** (-6.16)	0.668**** (-5.76)
Grade 11		0.685**** (-5.58)	0.720**** (-4.88)
12th grade - no diploma		0.999 (-0.01)	1.023 (0.34)
Regular high school diploma		1.004 (0.07)	1.042 (0.78)
GED or alternative credential		0.857** (-2.55)	0.907 (-1.62)
Some college, but less than 1 year		0.889** (-2.09)	0.945 (-1.00)
1 or more years college credit, no degree		0.938 (-1.19)	0.984 (-0.29)
Associate's degree		0.927 (-1.38)	0.950 (-0.92)
Bachelor's degree		1.160*** (2.79)	1.104* (1.86)
Master's degree		1.237**** (3.88)	1.120** (2.08)
Professional degree beyond a bachelor's degree		2.433**** (16.00)	2.141**** (13.71)
Doctorate degree		1.598**** (7.50)	1.437**** (5.84)
NRCS region		.	.
		.	.
Northeast		1.083**** (5.24)	1.036* (1.89)
Southeast		0.981 (-1.26)	1.031* (1.85)
West		1.165**** (10.40)	1.023 (1.35)
Management of Companies		0.525****	0.517****

Independent Variables	Specification		
	Model A	Model B	Model C
		(-6.75)	(-7.00)
Admin. & Supportive Services		0.787****	0.837****
		(-18.15)	(-13.59)
Interest and dividend income (log)			1.004****
			(3.54)
Home is owned free and clear			0.995
			(-0.38)
Property value			1.000****
			(30.56)
Married, spouse present			1.282****
			(18.97)
Number of children in family			1.020****
			(3.59)
Number of workers in family			0.897****
			(-12.66)
Lived in same house 1 year ago			1.031*
			(1.84)
Foreign born			1.315****
			(9.28)
Years in U.S., if immigrant			1.008****
			(7.88)
Speaks English well or very well			1.067****
			(3.69)
Veteran			0.883****
			(-4.66)
Statewide general population			1.000
			(0.85)
Statewide unemployment rate			1.005
			(0.58)
Statewide government FTEs			1.000
			(1.64)
Statewide per capita income (log)			1.297****
			(5.20)
Constant	19759.534****	318.078****	31.628****
	(695.78)	(64.05)	(6.31)
Adj. R-squared	0.016	0.113	0.129
Number of Obs.	102486	102486	101890

Source and Notes: See Table 4.5. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.5D. Annual Business Owner Earnings Regressions, General Services, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
MBE or WBE?	.	.	.
MBE	0.693**** (-51.03)	0.801**** (-30.84)	0.749**** (-35.12)
WBE	0.565**** (-85.84)	0.659**** (-63.75)	0.663**** (-62.51)
Year	1.023**** (11.20)	1.023**** (12.05)	1.008*** (2.71)
Age		1.179**** (100.82)	1.131**** (66.51)
Age squared		0.998**** (-86.76)	0.999**** (-62.58)
Schooling		.	.
Nursery school/preschool		1.007 (0.22)	1.004 (0.12)
Grade 9		0.887*** (-3.16)	0.887*** (-3.17)
Grade 10		0.783**** (-6.60)	0.781**** (-6.74)
Grade 11		0.784**** (-6.84)	0.784**** (-6.86)
12th grade - no diploma		1.088** (2.42)	1.079** (2.19)
Regular high school diploma		1.142**** (4.74)	1.169**** (5.61)
GED or alternative credential		0.963 (-1.21)	1.006 (0.18)
Some college, but less than 1 year		0.985 (-0.50)	1.046 (1.52)
1 or more years college credit, no degree		1.006 (0.22)	1.055* (1.91)
Associate's degree		0.992 (-0.29)	0.996 (-0.13)
Bachelor's degree		1.130**** (4.36)	1.064** (2.24)
Master's degree		1.151**** (4.89)	1.042 (1.45)
Professional degree beyond a bachelor's degree		2.678**** (32.73)	2.262**** (27.13)
Doctorate degree		1.679**** (15.94)	1.463**** (11.75)
NRCS region		.	.
Northeast		1.026**** (3.39)	0.976*** (-2.61)
Southeast		0.991 (-1.13)	1.039**** (4.48)
West		1.153**** (18.72)	1.007 (0.83)
Warehousing		0.642****	0.671****

Independent Variables	Specification		
	Model A	Model B	Model C
		(-13.92)	(-12.63)
Information		0.564****	0.553****
		(-30.39)	(-31.62)
Finance & Insurance		0.860****	0.818****
		(-8.88)	(-11.91)
Real Estate		1.229****	1.160****
		(12.95)	(9.40)
Profess., Tech. & Sci. Services		0.885****	0.863****
		(-9.06)	(-10.99)
Management of Companies		0.470****	0.450****
		(-7.94)	(-8.48)
Admin. & Supportive Services		0.662****	0.680****
		(-29.69)	(-27.99)
Educational Services		0.332****	0.351****
		(-67.36)	(-63.63)
Medical Services		0.665****	0.670****
		(-26.78)	(-26.48)
Social Assistance Services		0.596****	0.620****
		(-31.20)	(-28.93)
Arts & Entertainment		0.577****	0.591****
		(-38.41)	(-36.93)
Other Services		0.667****	0.680****
		(-31.41)	(-30.19)
Interest and dividend income (log)			1.000
			(-0.47)
Home is owned free and clear			1.028****
			(3.84)
Property value			1.000****
			(56.85)
Married, spouse present			1.245****
			(32.18)
Number of children in family			0.999
			(-0.42)
Number of workers in family			0.891****
			(-25.97)
Lived in same house 1 year ago			1.014
			(1.55)
Foreign born			1.282****
			(16.28)
Years in U.S., if immigrant			1.006****
			(12.00)
Speaks English well or very well			1.096****
			(10.16)
Veteran			0.911****
			(-6.46)
Statewide general population			1.000
			(0.17)
Statewide unemployment rate			1.005
			(1.21)
Statewide government FTEs			1.000****
			(3.89)

Independent Variables	Specification		
	Model A	Model B	Model C
Statewide per capita income (log)			1.376****
			(12.23)
Constant	16664.346****	354.662****	24.732****
	(1268.20)	(126.81)	(11.22)
Adj. R-squared	0.020	0.128	0.130
Number of Obs.	371402	371402	366905

Source and Notes: See Table 4.5. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.5E. Annual Business Owner Earnings Regressions, Goods, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
MBE or WBE?	.	.	.
MBE	0.808**** (-13.04)	0.790**** (-14.07)	0.669**** (-20.23)
WBE	0.562**** (-37.12)	0.578**** (-35.19)	0.585**** (-34.52)
Year	1.014*** (2.98)	1.021**** (4.77)	1.010 (1.48)
Age		1.176**** (40.91)	1.126**** (26.77)
Age squared		0.998**** (-34.29)	0.999**** (-23.70)
Schooling		.	.
Nursery school/preschool		1.167** (2.02)	1.063 (0.81)
Grade 9		0.893 (-1.23)	0.890 (-1.29)
Grade 10		0.757*** (-3.10)	0.781*** (-2.78)
Grade 11		0.762*** (-3.16)	0.811** (-2.46)
12th grade - no diploma		0.834** (-2.24)	0.827** (-2.37)
Regular high school diploma		0.847** (-2.48)	0.893* (-1.71)
GED or alternative credential		0.736**** (-4.11)	0.799*** (-3.04)
Some college, but less than 1 year		0.723**** (-4.68)	0.783**** (-3.57)
1 or more years college credit, no degree		0.759**** (-4.10)	0.804*** (-3.28)
Associate's degree		0.703**** (-5.16)	0.720**** (-4.84)
Bachelor's degree		0.848** (-2.48)	0.786**** (-3.66)
Master's degree		0.793**** (-3.33)	0.682**** (-5.54)
Professional degree beyond a bachelor's degree		1.056 (0.61)	0.850* (-1.83)
Doctorate degree		0.957 (-0.45)	0.784** (-2.55)
NRCS region		.	.
Northeast		1.090**** (4.96)	1.064*** (2.99)
Southeast		1.127**** (6.57)	1.149**** (6.98)
West		1.286**** (14.29)	1.091**** (4.38)
Manufacturing-NAICS 32		0.907***	0.899***

Independent Variables	Specification		
	Model A	Model B	Model C
		(-2.96)	(-3.26)
Manufacturing-NAICS 33		0.896****	0.889****
		(-3.70)	(-4.04)
Wholesale Trade		1.444****	1.383****
		(12.02)	(10.77)
Retail Trade-NAICS 44		1.178****	1.172****
		(5.82)	(5.71)
Retail Trade-NAICS 45		1.074**	1.110****
		(2.51)	(3.70)
Interest and dividend income (log)			1.005****
			(3.68)
Home is owned free and clear			1.039**
			(2.12)
Property value			1.000****
			(31.93)
Married, spouse present			1.275****
			(14.87)
Number of children in family			1.016**
			(2.43)
Number of workers in family			0.892****
			(-11.26)
Lived in same house 1 year ago			0.978
			(-1.04)
Foreign born			1.293****
			(6.71)
Years in U.S., if immigrant			1.002
			(1.63)
Speaks English well or very well			1.263****
			(10.83)
Veteran			0.781****
			(-8.02)
Statewide general population			1.000
			(0.55)
Statewide unemployment rate			0.998
			(-0.17)
Statewide government FTEs			1.000
			(1.37)
Statewide per capita income (log)			1.074
			(1.18)
Constant	12104.624****	225.208****	244.846****
	(571.46)	(49.22)	(8.28)
Adj. R-squared	0.018	0.079	0.098
Number of Obs.	75049	75049	74377

Source and Notes: See Table 4.5. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.5F. Annual Business Owner Earnings Regressions, All Industries, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
MBE or WBE?	.	.	.
	.	.	.
MBE	0.701**** (-62.91)	0.791**** (-40.54)	0.733**** (-46.19)
WBE	0.538**** (-115.32)	0.629**** (-83.39)	0.634**** (-82.17)
Year	1.020**** (12.38)	1.022**** (14.21)	1.003 (1.17)
Age		1.170**** (116.86)	1.120**** (75.72)
Age squared		0.998**** (-101.03)	0.999**** (-71.32)
Schooling		.	.
		.	.
Nursery school/preschool		1.104**** (4.06)	1.071*** (2.85)
Grade 9		0.947* (-1.92)	0.949* (-1.86)
Grade 10		0.810**** (-7.56)	0.824**** (-7.02)
Grade 11		0.814**** (-7.62)	0.836**** (-6.71)
12th grade - no diploma		1.049* (1.80)	1.046* (1.70)
Regular high school diploma		1.097**** (4.33)	1.131**** (5.77)
GED or alternative credential		0.916**** (-3.65)	0.970 (-1.29)
Some college, but less than 1 year		0.960* (-1.80)	1.019 (0.83)
1 or more years college credit, no degree		0.991 (-0.40)	1.041* (1.87)
Associate's degree		0.971 (-1.30)	0.980 (-0.90)
Bachelor's degree		1.099**** (4.37)	1.035 (1.61)
Master's degree		1.109**** (4.60)	0.998 (-0.11)
Professional degree beyond a bachelor's degree		2.491**** (37.80)	2.076**** (30.32)
Doctorate degree		1.588**** (17.26)	1.366**** (11.70)
NRCS region		.	.
		.	.
Northeast		1.015** (2.39)	0.977*** (-3.15)
Southeast		0.980*** (-3.21)	1.034**** (4.94)
West		1.133**** (20.48)	1.003 (0.45)
NAICS sector		.	.

Independent Variables	Specification		
	Model A	Model B	Model C
		.	.
Extractive Industries		0.752****	0.728****
		(-7.19)	(-8.12)
Utilities		0.341****	0.340****
		(-25.67)	(-26.10)
Construction		0.837****	0.845****
		(-15.78)	(-14.98)
Manufacturing-NAICS 31		0.452****	0.451****
		(-30.89)	(-31.34)
Manufacturing-NAICS 32		0.413****	0.409****
		(-40.82)	(-41.69)
Manufacturing-NAICS 33		0.407****	0.403****
		(-54.24)	(-55.30)
Wholesale Trade		0.659****	0.637****
		(-22.65)	(-24.84)
Retail Trade-NAICS 44		0.530****	0.531****
		(-42.74)	(-42.90)
Retail Trade-NAICS 45		0.479****	0.491****
		(-47.26)	(-45.97)
Transportation		0.886****	0.893****
		(-8.22)	(-7.74)
Warehousing		0.571****	0.606****
		(-18.03)	(-16.26)
Information		0.503****	0.501****
		(-38.77)	(-39.26)
Finance & Insurance		0.773****	0.736****
		(-16.41)	(-19.75)
Real Estate		1.111****	1.051****
		(7.21)	(3.41)
Profess., Tech. & Sci. Services		0.803****	0.788****
		(-18.31)	(-20.00)
Management of Companies		0.424****	0.407****
		(-9.15)	(-9.68)
Admin. & Supportive Services		0.586****	0.609****
		(-42.07)	(-39.18)
Educational Services		0.300****	0.322****
		(-79.92)	(-74.84)
Medical Services		0.611****	0.620****
		(-35.40)	(-34.62)
Social Assistance Services		0.539****	0.566****
		(-39.99)	(-37.04)
Arts & Entertainment		0.514****	0.534****
		(-51.09)	(-48.24)
Other Services		0.596****	0.615****
		(-44.61)	(-42.04)
Interest and dividend income (log)			1.002****
			(4.66)
Home is owned free and clear			1.031****
			(5.09)
Property value			1.000****
			(69.79)

Independent Variables	Specification		
	Model A	Model B	Model C
Married, spouse present			1.279**** (44.76)
Number of children in family			1.012**** (5.30)
Number of workers in family			0.894**** (-31.87)
Lived in same house 1 year ago			1.022*** (2.95)
Foreign born			1.278**** (19.26)
Years in U.S., if immigrant			1.006**** (12.83)
Speaks English well or very well			1.130**** (16.67)
Veteran			0.877**** (-11.89)
Statewide general population			1.000** (1.99)
Statewide unemployment rate			0.995 (-1.46)
Statewide government FTEs			1.000*** (2.61)
Statewide per capita income (log)			1.354**** (14.48)
Constant	16991.705**** (1654.46)	513.906**** (170.30)	44.397**** (16.52)
Adj. R-squared	0.024	0.118	0.124
Number of Obs.	555388	555388	549731

Source and Notes: See Table 4.5. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.5G. Annual Business Owner Earnings Regressions, Construction, Detailed Race, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
Detailed Race/Ethnicity	.	.	.
	.	.	.
Black	0.597**** (-18.32)	0.611**** (-17.57)	0.686**** (-13.46)
Hispanic	0.876**** (-10.21)	0.919**** (-5.90)	0.865**** (-7.54)
Asian Pacific	0.981 (-0.46)	0.904** (-2.40)	0.793**** (-5.29)
Subcontinent Asian	1.088 (0.79)	1.041 (0.38)	0.900 (-1.00)
Alaska Native	0.697**** (-6.23)	0.712**** (-5.92)	0.795**** (-4.06)
Other race	0.888 (-1.03)	0.887 (-1.06)	0.851 (-1.44)
Two or more races	0.685**** (-8.30)	0.711**** (-7.55)	0.743**** (-6.67)
Non-Hispanic white female?	.	.	.
	.	.	.
Non-Hispanic white female	0.544**** (-25.26)	0.531**** (-26.33)	0.531**** (-26.72)
Year	1.031**** (8.62)	1.033**** (9.28)	1.002 (0.43)
Age		1.120**** (33.58)	1.083**** (22.36)
Age squared		0.999**** (-30.95)	0.999**** (-22.62)
Schooling		.	.
		.	.
Nursery school/preschool		1.163**** (3.65)	1.126*** (2.90)
Grade 9		1.041 (0.86)	1.057 (1.20)
Grade 10		0.959 (-0.90)	0.984 (-0.35)
Grade 11		1.006 (0.13)	1.037 (0.80)
12th grade - no diploma		1.130*** (2.71)	1.110** (2.34)
Regular high school diploma		1.194**** (4.76)	1.188**** (4.66)
GED or alternative credential		0.965 (-0.86)	1.003 (0.08)
Some college, but less than 1 year		1.093** (2.19)	1.076* (1.82)
1 or more years college credit, no degree		1.176**** (4.20)	1.158**** (3.84)
Associate's degree		1.121*** (2.78)	1.079* (1.86)
Bachelor's degree		1.273**** (6.06)	1.146**** (3.45)
Master's degree		1.394****	1.212****

Independent Variables	Specification		
	Model A	Model B	Model C
		(6.30)	(3.69)
Professional degree beyond a bachelor's degree		1.345***	1.151
		(3.14)	(1.51)
Doctorate degree		0.957	0.885
		(-0.26)	(-0.74)
NRCS region		.	.
		.	.
Northeast		1.060****	1.029*
		(4.24)	(1.73)
Southeast		0.944****	1.007
		(-4.09)	(0.45)
West		1.073****	1.008
		(4.91)	(0.52)
Construction		.	.
		.	.
Interest and dividend income (log)			1.006****
			(4.61)
Home is owned free and clear			1.024*
			(1.77)
Property value			1.000****
			(24.12)
Married, spouse present			1.354****
			(24.95)
Number of children in family			1.042****
			(8.64)
Number of workers in family			0.928****
			(-9.84)
Lived in same house 1 year ago			1.087****
			(4.95)
Foreign born			1.197****
			(6.07)
Years in U.S., if immigrant			1.005****
			(4.63)
Speaks English well or very well			1.078****
			(4.56)
Veteran			0.895****
			(-5.35)
Statewide general population			1.000
			(1.46)
Statewide unemployment rate			0.971****
			(-3.80)
Statewide government FTEs			1.000
			(-0.67)
Statewide per capita income (log)			1.352****
			(6.40)
Constant	18885.417****	1215.677****	90.352****
	(804.71)	(86.74)	(8.72)
Adj. R-squared	0.014	0.037	0.062
Number of Obs.	77023	77023	76687

Source and Notes: See Table 4.5. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.5H. Annual Business Owner Earnings Regressions, AECRS, Detailed Race, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
Detailed Race/Ethnicity	.	.	.
	.	.	.
Black	0.408****	0.454****	0.491****
	(-6.07)	(-5.50)	(-4.97)
Hispanic	0.837*	0.980	0.936
	(-1.95)	(-0.23)	(-0.67)
Asian Pacific	0.789**	0.765**	0.706***
	(-2.04)	(-2.34)	(-2.79)
Subcontinent Asian	0.717	0.708*	0.647**
	(-1.57)	(-1.68)	(-2.01)
Alaska Native	0.339**	0.329**	0.333**
	(-2.20)	(-2.34)	(-2.33)
Other race	0.309*	0.288*	0.279**
	(-1.76)	(-1.93)	(-1.99)
Two or more races	0.638**	0.743*	0.788
	(-2.57)	(-1.75)	(-1.41)
Non-Hispanic white female?	.	.	.
	.	.	.
Non-Hispanic white female	0.540****	0.572****	0.555****
	(-10.39)	(-9.67)	(-10.17)
Year	0.990	0.996	0.998
	(-0.65)	(-0.29)	(-0.07)
Age		1.207****	1.161****
		(11.59)	(8.35)
Age squared		0.998****	0.999****
		(-9.54)	(-7.21)
Schooling		.	.
		.	.
Nursery school/preschool		2.313	2.477
		(0.97)	(1.06)
Grade 9		1.440	1.608
		(0.41)	(0.54)
Grade 10		1.360	1.399
		(0.37)	(0.40)
Grade 11		0.833	0.799
		(-0.23)	(-0.29)
12th grade - no diploma		2.857	2.785
		(1.38)	(1.36)
Regular high school diploma		1.770	1.843
		(0.88)	(0.95)
GED or alternative credential		1.359	1.473
		(0.45)	(0.57)
Some college, but less than 1 year		1.719	1.817
		(0.83)	(0.92)
1 or more years college credit, no degree		1.571	1.648
		(0.69)	(0.77)
Associate's degree		1.365	1.413
		(0.48)	(0.54)
Bachelor's degree		1.875	1.790
		(0.97)	(0.91)
Master's degree		1.843	1.698

Independent Variables	Specification		
	Model A	Model B	Model C
		(0.94)	(0.82)
Professional degree beyond a bachelor's degree		2.298	2.037
		(1.27)	(1.09)
Doctorate degree		2.546	2.259
		(1.41)	(1.23)
NRCS region		.	.
		.	.
Northeast		1.089	0.997
		(1.31)	(-0.04)
Southeast		1.051	1.094
		(0.74)	(1.26)
West		1.173**	1.033
		(2.54)	(0.46)
Profess., Tech. & Sci. Services		.	.
		.	.
Interest and dividend income (log)			0.998
			(-0.46)
Home is owned free and clear			1.041
			(0.58)
Property value			1.000****
			(6.79)
Married, spouse present			1.270****
			(3.94)
Number of children in family			1.051**
			(2.08)
Number of workers in family			0.914**
			(-2.32)
Lived in same house 1 year ago			0.994
			(-0.08)
Foreign born			1.070
			(0.48)
Years in U.S., if immigrant			1.008
			(1.61)
Speaks English well or very well			1.166*
			(1.70)
Veteran			0.673****
			(-4.29)
Statewide general population			1.000
			(0.16)
Statewide unemployment rate			1.042
			(1.22)
Statewide government FTEs			1.000
			(-0.02)
Statewide per capita income (log)			1.579**
			(2.19)
Constant	21636.681****	74.870****	0.812
	(182.07)	(5.84)	(-0.09)
Adj. R-squared	0.021	0.084	0.099
Number of Obs.	6266	6266	6256

Source and Notes: See Table 4.5. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.5I. Annual Business Owner Earnings Regressions, Professional Services ex AECRS, Detailed Race, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
Detailed Race/Ethnicity	.	.	.
	.	.	.
Black	0.465**** (-29.61)	0.564**** (-23.01)	0.622**** (-18.95)
Hispanic	0.665**** (-24.47)	0.886**** (-6.77)	0.842**** (-8.29)
Asian Pacific	0.808**** (-6.85)	0.738**** (-10.20)	0.667**** (-12.67)
Subcontinent Asian	1.038 (0.76)	0.922* (-1.73)	0.803**** (-4.49)
Alaska Native	0.480**** (-8.40)	0.621**** (-5.75)	0.709**** (-4.14)
Other race	0.681*** (-3.18)	0.801* (-1.93)	0.854 (-1.38)
Two or more races	0.579**** (-12.85)	0.688**** (-9.23)	0.708**** (-8.56)
Non-Hispanic white female?	.	.	.
	.	.	.
Non-Hispanic white female	0.646**** (-34.73)	0.639**** (-37.29)	0.646**** (-36.32)
Year	1.014**** (3.72)	1.017**** (4.53)	1.004 (0.73)
Age		1.174**** (48.33)	1.135**** (35.08)
Age squared		0.998**** (-40.79)	0.999**** (-32.39)
Schooling		.	.
		.	.
Nursery school/preschool		1.014 (0.23)	0.994 (-0.09)
Grade 9		0.888* (-1.69)	0.877* (-1.88)
Grade 10		0.689**** (-5.28)	0.693**** (-5.23)
Grade 11		0.741**** (-4.41)	0.753**** (-4.20)
12th grade - no diploma		1.049 (0.70)	1.055 (0.80)
Regular high school diploma		1.084 (1.51)	1.093* (1.67)
GED or alternative credential		0.928 (-1.22)	0.951 (-0.83)
Some college, but less than 1 year		0.969 (-0.56)	0.996 (-0.08)
1 or more years college credit, no degree		1.026 (0.48)	1.040 (0.73)
Associate's degree		1.011 (0.19)	1.005 (0.09)
Bachelor's degree		1.263**** (4.36)	1.170*** (2.94)

Independent Variables	Specification		
	Model A	Model B	Model C
Master's degree		1.345****	1.192***
		(5.38)	(3.20)
Professional degree beyond a bachelor's degree		2.643****	2.259****
		(17.40)	(14.61)
Doctorate degree		1.743****	1.533****
		(8.85)	(6.84)
NRCS region		.	.
		.	.
Northeast		1.094****	1.041**
		(5.93)	(2.14)
Southeast		1.003	1.043**
		(0.17)	(2.56)
West		1.152****	1.021
		(9.60)	(1.23)
Management of Companies		0.533****	0.521****
		(-6.61)	(-6.92)
Admin. & Supportive Services		0.786****	0.833****
		(-18.29)	(-13.92)
Interest and dividend income (log)			1.004****
			(3.33)
Home is owned free and clear			0.994
			(-0.44)
Property value			1.000****
			(30.83)
Married, spouse present			1.278****
			(18.73)
Number of children in family			1.018***
			(3.24)
Number of workers in family			0.896****
			(-12.83)
Lived in same house 1 year ago			1.031*
			(1.80)
Foreign born			1.289****
			(8.52)
Years in U.S., if immigrant			1.008****
			(8.03)
Speaks English well or very well			1.029
			(1.57)
Veteran			0.889****
			(-4.39)
Statewide general population			1.000
			(0.37)
Statewide unemployment rate			1.007
			(0.82)
Statewide government FTEs			1.000*
			(1.94)
Statewide per capita income (log)			1.306****
			(5.34)
Constant	19796.101****	298.215****	27.530****
	(697.05)	(63.31)	(6.06)
Adj. R-squared	0.019	0.116	0.130

Independent Variables	Specification		
	Model A	Model B	Model C
Number of Obs.	102486	102486	101890

Source and Notes: *See* Table 4.5. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, **** $p < 0.001$.

Table 4.5J. Annual Business Owner Earnings Regressions, General Services, Detailed Race, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
Detailed Race/Ethnicity	.	.	.
	.	.	.
Black	0.565**** (-45.84)	0.673**** (-33.00)	0.711**** (-28.05)
Hispanic	0.695**** (-39.74)	0.841**** (-18.27)	0.783**** (-22.41)
Asian Pacific	0.891**** (-8.25)	0.920**** (-6.20)	0.801**** (-14.85)
Subcontinent Asian	1.131**** (4.94)	1.027 (1.13)	0.859**** (-6.12)
Alaska Native	0.499**** (-16.65)	0.600**** (-12.94)	0.665**** (-10.36)
Other race	0.687**** (-6.01)	0.810**** (-3.57)	0.776**** (-4.32)
Two or more races	0.533**** (-29.02)	0.675**** (-19.10)	0.680**** (-18.76)
Non-Hispanic white female?	.	.	.
	.	.	.
Non-Hispanic white female	0.565**** (-85.99)	0.658**** (-63.98)	0.663**** (-62.61)
Year	1.022**** (11.07)	1.023**** (11.93)	1.009*** (2.90)
Age		1.178**** (100.31)	1.131**** (66.55)
Age squared		0.998**** (-86.25)	0.999**** (-62.64)
Schooling		.	.
		.	.
Nursery school/preschool		1.010 (0.32)	1.003 (0.11)
Grade 9		0.900*** (-2.75)	0.889*** (-3.11)
Grade 10		0.810**** (-5.70)	0.787**** (-6.53)
Grade 11		0.821**** (-5.54)	0.793**** (-6.54)
12th grade - no diploma		1.114*** (3.08)	1.086** (2.38)
Regular high school diploma		1.190**** (6.20)	1.182**** (5.99)
GED or alternative credential		1.006 (0.18)	1.016 (0.51)
Some college, but less than 1 year		1.031 (1.04)	1.058* (1.91)
1 or more years college credit, no degree		1.056* (1.91)	1.069** (2.35)
Associate's degree		1.036 (1.23)	1.009 (0.30)
Bachelor's degree		1.172**** (5.66)	1.075*** (2.59)
Master's degree		1.192****	1.053*

Independent Variables	Specification		
	Model A	Model B	Model C
		(6.08)	(1.81)
Professional degree beyond a bachelor's degree		2.758****	2.280****
		(33.64)	(27.33)
Doctorate degree		1.736****	1.479****
		(16.93)	(12.06)
NRCS region		.	.
		.	.
Northeast		1.028****	0.976**
		(3.54)	(-2.57)
Southeast		1.004	1.043****
		(0.48)	(4.87)
West		1.139****	1.006
		(17.12)	(0.64)
Warehousing		0.645****	0.670****
		(-13.79)	(-12.68)
Information		0.565****	0.552****
		(-30.26)	(-31.68)
Finance & Insurance		0.857****	0.815****
		(-9.08)	(-12.12)
Real Estate		1.221****	1.156****
		(12.55)	(9.14)
Profess., Tech. & Sci. Services		0.882****	0.860****
		(-9.32)	(-11.23)
Management of Companies		0.470****	0.449****
		(-7.94)	(-8.51)
Admin. & Supportive Services		0.661****	0.678****
		(-29.66)	(-28.09)
Educational Services		0.331****	0.351****
		(-67.31)	(-63.62)
Medical Services		0.664****	0.668****
		(-26.86)	(-26.62)
Social Assistance Services		0.600****	0.620****
		(-30.74)	(-28.93)
Arts & Entertainment		0.573****	0.589****
		(-38.77)	(-37.06)
Other Services		0.664****	0.677****
		(-31.74)	(-30.35)
Interest and dividend income (log)			1.000
			(-0.65)
Home is owned free and clear			1.025****
			(3.39)
Property value			1.000****
			(56.81)
Married, spouse present			1.242****
			(31.73)
Number of children in family			0.999
			(-0.34)
Number of workers in family			0.890****
			(-26.10)
Lived in same house 1 year ago			1.013
			(1.53)

Independent Variables	Specification		
	Model A	Model B	Model C
Foreign born			1.253**** (14.58)
Years in U.S., if immigrant			1.006**** (12.22)
Speaks English well or very well			1.077**** (8.08)
Veteran			0.913**** (-6.32)
Statewide general population			1.000 (-0.07)
Statewide unemployment rate			1.006 (1.50)
Statewide government FTEs			1.000**** (3.95)
Statewide per capita income (log)			1.377**** (12.25)
Constant	16678.945**** (1270.48)	348.630**** (126.49)	24.290**** (11.16)
Adj. R-squared	0.024	0.130	0.130
Number of Obs.	371402	371402	366905

Source and Notes: See Table 4.5. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.5K. Annual Business Owner Earnings Regressions, Goods, Detailed Race, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
Detailed Race/Ethnicity	.	.	.
	.	.	.
Black	0.455**** (-22.46)	0.503**** (-19.97)	0.556**** (-16.87)
Hispanic	0.848**** (-7.40)	0.826**** (-8.31)	0.705**** (-13.22)
Asian Pacific	1.094*** (2.91)	0.983 (-0.55)	0.727**** (-9.06)
Subcontinent Asian	1.360**** (6.31)	1.250**** (4.67)	0.874*** (-2.59)
Alaska Native	0.605**** (-6.57)	0.618**** (-6.44)	0.688**** (-5.02)
Other race	0.614*** (-2.98)	0.608*** (-3.13)	0.575**** (-3.54)
Two or more races	0.574**** (-10.77)	0.659**** (-8.30)	0.672**** (-7.93)
Non-Hispanic white female?	.	.	.
	.	.	.
Non-Hispanic white female	0.562**** (-37.26)	0.578**** (-35.20)	0.584**** (-34.57)
Year	1.014*** (2.97)	1.021**** (4.74)	1.011 (1.55)
Age		1.173**** (40.36)	1.126**** (26.70)
Age squared		0.998**** (-33.84)	0.999**** (-23.75)
Schooling		.	.
		.	.
Nursery school/preschool		1.195** (2.34)	1.073 (0.93)
Grade 9		0.929 (-0.81)	0.897 (-1.21)
Grade 10		0.793*** (-2.60)	0.782*** (-2.76)
Grade 11		0.810** (-2.44)	0.816** (-2.38)
12th grade - no diploma		0.865* (-1.79)	0.833** (-2.29)
Regular high school diploma		0.895* (-1.66)	0.900 (-1.60)
GED or alternative credential		0.781**** (-3.32)	0.804*** (-2.96)
Some college, but less than 1 year		0.764**** (-3.89)	0.787**** (-3.48)
1 or more years college credit, no degree		0.806*** (-3.21)	0.810*** (-3.16)
Associate's degree		0.741**** (-4.38)	0.726**** (-4.72)
Bachelor's degree		0.882* (-1.88)	0.789**** (-3.59)
Master's degree		0.812***	0.683****

Independent Variables	Specification		
	Model A	Model B	Model C
		(-2.99)	(-5.51)
Professional degree beyond a bachelor's degree		1.087	0.852*
		(0.93)	(-1.80)
Doctorate degree		0.971	0.790**
		(-0.30)	(-2.46)
NRCS region		.	.
		.	.
Northeast		1.093****	1.068***
		(5.12)	(3.15)
Southeast		1.155****	1.161****
		(7.87)	(7.47)
West		1.261****	1.087****
		(13.16)	(4.17)
Manufacturing-NAICS 32		0.914***	0.901***
		(-2.73)	(-3.21)
Manufacturing-NAICS 33		0.899****	0.889****
		(-3.63)	(-4.04)
Wholesale Trade		1.437****	1.381****
		(11.87)	(10.73)
Retail Trade-NAICS 44		1.165****	1.168****
		(5.41)	(5.58)
Retail Trade-NAICS 45		1.074**	1.109****
		(2.50)	(3.66)
Interest and dividend income (log)			1.005****
			(3.49)
Home is owned free and clear			1.032*
			(1.72)
Property value			1.000****
			(31.79)
Married, spouse present			1.267****
			(14.49)
Number of children in family			1.016**
			(2.57)
Number of workers in family			0.891****
			(-11.37)
Lived in same house 1 year ago			0.978
			(-1.03)
Foreign born			1.254****
			(5.84)
Years in U.S., if immigrant			1.003**
			(2.08)
Speaks English well or very well			1.230****
			(9.49)
Veteran			0.784****
			(-7.89)
Statewide general population			1.000
			(0.48)
Statewide unemployment rate			0.999
			(-0.07)
Statewide government FTEs			1.000
			(1.41)

Independent Variables	Specification		
	Model A	Model B	Model C
Statewide per capita income (log)			1.070
			(1.12)
Constant	12107.029***	228.172****	252.711****
	(573.60)	(49.43)	(8.33)
Adj. R-squared	0.026	0.083	0.099
Number of Obs.	75049	75049	74377

Source and Notes: See Table 4.5. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.5L. Annual Business Owner Earnings Regressions, All Industries, Detailed Race, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
Detailed Race/Ethnicity	.	.	.
	.	.	.
Black	0.538**** (-58.11)	0.635**** (-43.57)	0.683**** (-36.18)
Hispanic	0.731**** (-43.64)	0.838**** (-23.67)	0.768**** (-29.93)
Asian Pacific	0.873**** (-11.50)	0.919**** (-7.34)	0.781**** (-19.20)
Subcontinent Asian	1.081**** (3.66)	1.058*** (2.78)	0.860**** (-7.09)
Alaska Native	0.557**** (-19.59)	0.627**** (-16.39)	0.699**** (-12.63)
Other race	0.687**** (-7.20)	0.783**** (-4.94)	0.746**** (-5.94)
Two or more races	0.532**** (-34.88)	0.662**** (-23.87)	0.673**** (-22.91)
Non-Hispanic white female?	.	.	.
	.	.	.
Non-Hispanic white female	0.538**** (-115.51)	0.629**** (-83.61)	0.633**** (-82.26)
Year	1.020**** (12.22)	1.022**** (14.03)	1.003 (1.41)
Age		1.169**** (116.17)	1.120**** (75.73)
Age squared		0.998**** (-100.33)	0.999**** (-71.39)
Schooling		.	.
		.	.
Nursery school/preschool		1.110**** (4.28)	1.072*** (2.90)
Grade 9		0.962 (-1.34)	0.951* (-1.78)
Grade 10		0.839**** (-6.30)	0.829**** (-6.80)
Grade 11		0.853**** (-5.87)	0.844**** (-6.35)
12th grade - no diploma		1.077*** (2.81)	1.052* (1.95)
Regular high school diploma		1.145**** (6.31)	1.142**** (6.21)
GED or alternative credential		0.958* (-1.76)	0.978 (-0.91)
Some college, but less than 1 year		1.006 (0.26)	1.029 (1.27)
1 or more years college credit, no degree		1.042* (1.88)	1.053** (2.39)
Associate's degree		1.016 (0.73)	0.991 (-0.41)
Bachelor's degree		1.141**** (6.12)	1.044** (2.02)
Master's degree		1.147****	1.006

Independent Variables	Specification		
	Model A	Model B	Model C
		(6.11)	(0.28)
Professional degree beyond a bachelor's degree		2.564****	2.089****
		(38.92)	(30.52)
Doctorate degree		1.640****	1.379****
		(18.44)	(12.03)
NRCS region		.	.
		.	.
Northeast		1.018***	0.978***
		(2.91)	(-2.99)
Southeast		0.995	1.039****
		(-0.80)	(5.58)
West		1.119****	1.001
		(18.40)	(0.17)
NAICS sector		.	.
		.	.
Extractive Industries		0.752****	0.728****
		(-7.21)	(-8.11)
Utilities		0.341****	0.340****
		(-25.72)	(-26.11)
Construction		0.833****	0.845****
		(-16.19)	(-15.03)
Manufacturing-NAICS 31		0.449****	0.450****
		(-31.15)	(-31.36)
Manufacturing-NAICS 32		0.413****	0.410****
		(-40.90)	(-41.65)
Manufacturing-NAICS 33		0.405****	0.403****
		(-54.53)	(-55.30)
Wholesale Trade		0.653****	0.636****
		(-23.22)	(-24.92)
Retail Trade-NAICS 44		0.522****	0.529****
		(-43.71)	(-43.08)
Retail Trade-NAICS 45		0.475****	0.490****
		(-47.71)	(-46.03)
Transportation		0.888****	0.897****
		(-8.04)	(-7.41)
Warehousing		0.576****	0.608****
		(-17.78)	(-16.14)
Information		0.505****	0.502****
		(-38.57)	(-39.15)
Finance & Insurance		0.771****	0.736****
		(-16.55)	(-19.74)
Real Estate		1.105****	1.051****
		(6.85)	(3.42)
Profess., Tech. & Sci. Services		0.801****	0.788****
		(-18.54)	(-19.98)
Management of Companies		0.425****	0.408****
		(-9.13)	(-9.66)
Admin. & Supportive Services		0.586****	0.610****
		(-42.04)	(-39.07)
Educational Services		0.300****	0.322****
		(-79.91)	(-74.71)

Independent Variables	Specification		
	Model A	Model B	Model C
Medical Services		0.612****	0.621****
		(-35.38)	(-34.52)
Social Assistance Services		0.544****	0.568****
		(-39.36)	(-36.77)
Arts & Entertainment		0.511****	0.534****
		(-51.57)	(-48.24)
Other Services		0.593****	0.615****
		(-45.03)	(-42.01)
Interest and dividend income (log)			1.002****
			(4.43)
Home is owned free and clear			1.027****
			(4.55)
Property value			1.000****
			(69.69)
Married, spouse present			1.275****
			(44.17)
Number of children in family			1.012****
			(5.48)
Number of workers in family			0.893****
			(-32.03)
Lived in same house 1 year ago			1.021***
			(2.92)
Foreign born			1.247****
			(17.15)
Years in U.S., if immigrant			1.006****
			(13.19)
Speaks English well or very well			1.110****
			(14.05)
Veteran			0.879****
			(-11.68)
Statewide general population			1.000*
			(1.69)
Statewide unemployment rate			0.996
			(-1.07)
Statewide government FTEs			1.000***
			(2.68)
Statewide per capita income (log)			1.356****
			(14.54)
Constant	17006.243****	505.023****	43.096****
	(1657.27)	(169.88)	(16.38)
Adj. R-squared	0.028	0.120	0.124
Number of Obs.	555388	555388	549731

Source and Notes: See Table 4.5. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.6A. Annual Business Owner Earnings Regressions, All Plaintiff NAICS, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
MBE or WBE?	.	.	.
MBE	0.598**** (-14.16)	0.726**** (-8.94)	0.739**** (-7.70)
WBE	0.658**** (-14.04)	0.683**** (-13.21)	0.696**** (-12.49)
Year	1.025*** (2.62)	1.022** (2.40)	0.998 (-0.13)
Age		1.174**** (16.59)	1.127**** (11.34)
Age squared		0.999**** (-14.06)	0.999**** (-9.52)
Schooling		.	.
Nursery school/preschool		1.189 (0.47)	1.096 (0.25)
Grade 9		2.083* (1.82)	1.978* (1.72)
Grade 10		0.840 (-0.43)	1.003 (0.01)
Grade 11		0.885 (-0.34)	1.198 (0.49)
12th grade - no diploma		0.857 (-0.46)	1.135 (0.38)
Regular high school diploma		1.452 (1.28)	1.406 (1.19)
GED or alternative credential		1.262 (0.75)	1.243 (0.72)
Some college, but less than 1 year		1.277 (0.83)	1.250 (0.77)
1 or more years college credit, no degree		1.332 (0.99)	1.287 (0.89)
Associate's degree		1.213 (0.67)	1.144 (0.47)
Bachelor's degree		1.745* (1.94)	1.527 (1.50)
Master's degree		1.890** (2.22)	1.593* (1.65)
Professional degree beyond a bachelor's degree		2.148*** (2.61)	1.701* (1.84)
Doctorate degree		1.859** (2.12)	1.536 (1.48)
NRCS region		.	.
Northeast		1.096** (2.40)	1.055 (1.16)
Southeast		1.034 (0.83)	1.089** (2.08)
West		1.148**** (3.73)	1.027 (0.64)
Admin. & Supportive Services		0.520****	0.556****

Independent Variables	Specification		
	Model A	Model B	Model C
		(-19.55)	(-17.68)
Interest and dividend income (log)			0.997
			(-1.26)
Home is owned free and clear			1.012
			(0.31)
Property value			1.000****
			(15.41)
Married, spouse present			1.286****
			(7.19)
Number of children in family			1.043***
			(2.87)
Number of workers in family			0.874****
			(-5.78)
Lived in same house 1 year ago			0.980
			(-0.49)
Foreign born			1.090
			(1.11)
Years in U.S., if immigrant			1.001
			(0.30)
Speaks English well or very well			1.005
			(0.10)
Veteran			1.010
			(0.16)
Statewide general population			1.000
			(0.40)
Statewide unemployment rate			0.985
			(-0.80)
Statewide government FTEs			1.000
			(0.65)
Statewide per capita income (log)			1.262*
			(1.89)
Constant	25059.427****	253.909****	55.284****
	(293.27)	(15.37)	(2.90)
Adj. R-squared	0.016	0.090	0.106
Number of Obs.	18301	18301	18187

Source and Notes: See Table 4.5. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.6B. Annual Business Owner Earnings Regressions, NAICS 5416, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
MBE or WBE?	.	.	.
MBE	0.650**** (-10.79)	0.714**** (-8.50)	0.714**** (-7.73)
WBE	0.659**** (-13.11)	0.659**** (-13.37)	0.676**** (-12.38)
Year	1.012 (1.16)	1.014 (1.40)	0.990 (-0.66)
Age		1.184**** (15.52)	1.142**** (11.04)
Age squared		0.998**** (-13.41)	0.999**** (-9.46)
Schooling		.	.
Nursery school/preschool		1.714 (1.07)	1.378 (0.64)
Grade 9		2.080 (1.37)	1.827 (1.14)
Grade 10		0.948 (-0.10)	0.867 (-0.26)
Grade 11		1.387 (0.66)	1.223 (0.41)
12th grade - no diploma		1.431 (0.84)	1.274 (0.57)
Regular high school diploma		1.861* (1.73)	1.618 (1.35)
GED or alternative credential		1.873 (1.63)	1.754 (1.47)
Some college, but less than 1 year		1.649 (1.38)	1.509 (1.14)
1 or more years college credit, no degree		1.620 (1.35)	1.455 (1.06)
Associate's degree		1.404 (0.95)	1.237 (0.60)
Bachelor's degree		2.035** (2.01)	1.673 (1.47)
Master's degree		2.278** (2.32)	1.806* (1.68)
Professional degree beyond a bachelor's degree		2.480** (2.52)	1.858* (1.73)
Doctorate degree		2.146** (2.12)	1.670 (1.44)
NRCS region		.	.
Northeast		1.100** (2.28)	1.056 (1.08)
Southeast		1.020 (0.45)	1.055 (1.18)
West		1.159**** (3.64)	1.035 (0.77)
Profess., Tech. & Sci. Services		.	.

Independent Variables	Specification		
	Model A	Model B	Model C
		.	.
Interest and dividend income (log)			0.997
			(-1.05)
Home is owned free and clear			0.941
			(-1.47)
Property value			1.000****
			(13.83)
Married, spouse present			1.228****
			(5.28)
Number of children in family			1.043***
			(2.59)
Number of workers in family			0.867****
			(-5.52)
Lived in same house 1 year ago			0.986
			(-0.30)
Foreign born			1.062
			(0.71)
Years in U.S., if immigrant			1.001
			(0.20)
Speaks English well or very well			1.019
			(0.36)
Veteran			0.993
			(-0.11)
Statewide general population			1.000
			(0.00)
Statewide unemployment rate			0.981
			(-0.92)
Statewide government FTEs			1.000
			(0.73)
Statewide per capita income (log)			1.193
			(1.31)
Constant	30095.703****	185.305****	83.297***
	(279.66)	(12.05)	(2.90)
Adj. R-squared	0.014	0.058	0.074
Number of Obs.	14638	14638	14588

Source and Notes: See Table 4.5. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.6C. Annual Business Owner Earnings Regressions, NAICS 561M, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
MBE or WBE?	.	.	.
	.	.	.
MBE	0.739**	0.872	0.936
	(-2.37)	(-1.05)	(-0.46)
WBE	0.718***	0.744***	0.770**
	(-3.12)	(-2.83)	(-2.51)
Year	1.087**	1.098***	1.097*
	(2.53)	(2.88)	(1.83)
Age		1.126****	1.107***
		(3.55)	(2.87)
Age squared		0.999***	0.999**
		(-2.71)	(-2.10)
Schooling		.	.
		.	.
Nursery school/preschool		1.416	1.356
		(0.31)	(0.27)
Grade 9		2.066	2.283
		(0.67)	(0.77)
Grade 10		0.899	0.877
		(-0.10)	(-0.12)
Grade 11		1.815	1.891
		(0.56)	(0.60)
12th grade - no diploma		0.152*	0.826
		(-1.87)	(-0.19)
Regular high school diploma		1.039	1.063
		(0.04)	(0.07)
GED or alternative credential		0.937	1.004
		(-0.07)	(0.00)
Some college, but less than 1 year		0.783	0.815
		(-0.26)	(-0.22)
1 or more years college credit, no degree		0.758	0.768
		(-0.30)	(-0.29)
Associate's degree		0.668	0.717
		(-0.43)	(-0.36)
Bachelor's degree		1.140	1.056
		(0.14)	(0.06)
Master's degree		1.258	1.099
		(0.25)	(0.10)
Professional degree beyond a bachelor's degree		0.860	0.772
		(-0.15)	(-0.26)
Doctorate degree		2.289	2.054
		(0.81)	(0.72)
NRCS region		.	.
		.	.
Northeast		1.143	0.941
		(0.97)	(-0.37)
Southeast		1.051	1.106
		(0.35)	(0.68)
West		0.971	0.879
		(-0.22)	(-0.90)
Admin. & Supportive Services		.	.

Independent Variables	Specification		
	Model A	Model B	Model C
		.	.
Interest and dividend income (log)			0.999
			(-0.15)
Home is owned free and clear			1.022
			(0.17)
Property value			1.000****
			(4.28)
Married, spouse present			1.324**
			(2.27)
Number of children in family			0.984
			(-0.30)
Number of workers in family			0.878
			(-1.61)
Lived in same house 1 year ago			1.011
			(0.07)
Foreign born			0.972
			(-0.11)
Years in U.S., if immigrant			0.994
			(-0.63)
Speaks English well or very well			1.018
			(0.10)
Veteran			1.184
			(0.75)
Statewide general population			1.000
			(-1.46)
Statewide unemployment rate			1.075
			(1.03)
Statewide government FTEs			1.000
			(1.48)
Statewide per capita income (log)			1.951
			(1.48)
Constant	12548.132****	449.585****	0.355
	(78.75)	(5.13)	(-0.21)
Adj. R-squared	0.008	0.057	0.063
Number of Obs.	1599	1599	1590

Source and Notes: See Table 4.5. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.6D. Annual Business Owner Earnings Regressions, NAICS 5613, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
MBE or WBE?	.	.	.
	.	.	.
MBE	0.654****	0.788**	0.899
	(-3.87)	(-2.19)	(-0.89)
WBE	0.864	0.843*	0.827*
	(-1.42)	(-1.70)	(-1.92)
Year	1.040	1.031	0.994
	(1.27)	(1.03)	(-0.12)
Age		1.137****	1.047
		(4.53)	(1.51)
Age squared		0.999****	1.000
		(-3.51)	(-0.90)
Schooling		.	.
		.	.
Nursery school/preschool		0.699	0.873
		(-0.51)	(-0.20)
Grade 9		1.203	1.642
		(0.21)	(0.59)
Grade 10		0.500	1.093
		(-0.89)	(0.11)
Grade 11		0.336	0.765
		(-1.56)	(-0.37)
12th grade - no diploma		0.927	1.233
		(-0.11)	(0.30)
Regular high school diploma		0.723	1.042
		(-0.52)	(0.07)
GED or alternative credential		0.528	0.712
		(-0.98)	(-0.54)
Some college, but less than 1 year		0.742	0.965
		(-0.48)	(-0.06)
1 or more years college credit, no degree		0.987	1.313
		(-0.02)	(0.46)
Associate's degree		1.060	1.246
		(0.09)	(0.37)
Bachelor's degree		1.499	1.655
		(0.66)	(0.86)
Master's degree		1.193	1.267
		(0.29)	(0.40)
Professional degree beyond a bachelor's degree		2.762	2.471
		(1.56)	(1.44)
Doctorate degree		2.064	2.270
		(1.02)	(1.20)
NRCS region		.	.
		.	.
Northeast		1.033	1.122
		(0.27)	(0.81)
Southeast		1.127	1.275*
		(0.97)	(1.88)
West		1.188	1.006
		(1.40)	(0.04)
Admin. & Supportive Services		.	.

Independent Variables	Specification		
	Model A	Model B	Model C
		.	.
Interest and dividend income (log)			0.995
			(-0.51)
Home is owned free and clear			1.322***
			(2.62)
Property value			1.000****
			(6.21)
Married, spouse present			1.649****
			(4.75)
Number of children in family			1.121**
			(2.56)
Number of workers in family			0.875*
			(-1.85)
Lived in same house 1 year ago			0.960
			(-0.32)
Foreign born			1.333
			(1.11)
Years in U.S., if immigrant			1.004
			(0.44)
Speaks English well or very well			0.812
			(-1.41)
Veteran			1.025
			(0.13)
Statewide general population			1.000*
			(1.91)
Statewide unemployment rate			0.961
			(-0.61)
Statewide government FTEs			1.000
			(-0.99)
Statewide per capita income (log)			1.176
			(0.40)
Constant	9542.692****	258.339****	160.346
	(76.79)	(6.45)	(1.15)
Adj. R-squared	0.007	0.075	0.127
Number of Obs.	2064	2064	2009

Source and Notes: See Table 4.5. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.6E. Annual Business Owner Earnings Regressions, All Pltf. NAICS, Det. Race, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
Detailed Race/Ethnicity	.	.	.
	.	.	.
Black	0.425**** (-14.00)	0.559**** (-9.72)	0.644**** (-7.28)
Hispanic	0.624**** (-8.26)	0.806**** (-3.83)	0.803**** (-3.65)
Asian Pacific	0.676**** (-5.54)	0.702**** (-5.14)	0.673**** (-5.32)
Subcontinent Asian	1.034 (0.31)	1.014 (0.13)	0.928 (-0.68)
Alaska Native	0.619** (-2.12)	0.858 (-0.70)	0.955 (-0.21)
Other race	0.749 (-0.92)	1.057 (0.18)	1.043 (0.14)
Two or more races	0.652**** (-4.37)	0.818** (-2.12)	0.828** (-2.02)
Non-Hispanic white female?	.	.	.
	.	.	.
Non-Hispanic white female	0.658**** (-14.06)	0.683**** (-13.23)	0.695**** (-12.55)
Year	1.024** (2.57)	1.022** (2.36)	0.998 (-0.16)
Age		1.174**** (16.61)	1.128**** (11.43)
Age squared		0.999**** (-14.05)	0.999**** (-9.61)
Schooling		.	.
		.	.
Nursery school/preschool		1.170 (0.43)	1.077 (0.20)
Grade 9		2.058* (1.79)	1.948* (1.68)
Grade 10		0.853 (-0.40)	1.004 (0.01)
Grade 11		0.958 (-0.12)	1.238 (0.58)
12th grade - no diploma		0.881 (-0.38)	1.148 (0.41)
Regular high school diploma		1.502 (1.40)	1.429 (1.24)
GED or alternative credential		1.303 (0.86)	1.256 (0.75)
Some college, but less than 1 year		1.319 (0.94)	1.269 (0.82)
1 or more years college credit, no degree		1.378 (1.11)	1.307 (0.94)
Associate's degree		1.250 (0.77)	1.161 (0.52)
Bachelor's degree		1.792** (2.04)	1.552 (1.55)
Master's degree		1.936**	1.619*

Independent Variables	Specification		
	Model A	Model B	Model C
		(2.30)	(1.70)
Professional degree beyond a bachelor's degree		2.199***	1.727*
		(2.69)	(1.89)
Doctorate degree		1.917**	1.572
		(2.22)	(1.56)
NRCS region		.	.
		.	.
Northeast		1.102**	1.058
		(2.55)	(1.22)
Southeast		1.048	1.098**
		(1.18)	(2.27)
West		1.139****	1.024
		(3.51)	(0.58)
Admin. & Supportive Services		0.525****	0.558****
		(-19.28)	(-17.57)
Interest and dividend income (log)			0.997
			(-1.44)
Home is owned free and clear			1.010
			(0.27)
Property value			1.000****
			(15.41)
Married, spouse present			1.275****
			(6.93)
Number of children in family			1.043***
			(2.88)
Number of workers in family			0.877****
			(-5.65)
Lived in same house 1 year ago			0.979
			(-0.51)
Foreign born			1.091
			(1.10)
Years in U.S., if immigrant			1.001
			(0.36)
Speaks English well or very well			0.978
			(-0.46)
Veteran			1.012
			(0.20)
Statewide general population			1.000
			(0.32)
Statewide unemployment rate			0.985
			(-0.78)
Statewide government FTEs			1.000
			(0.74)
Statewide per capita income (log)			1.267*
			(1.92)
Constant	25092.700****	244.133****	50.488****
	(293.75)	(15.25)	(2.84)
Adj. R-squared	0.019	0.092	0.107
Number of Obs.	18301	18301	18187

Source and Notes: See Table 4.5. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.6F. Annual Business Owner Earnings Regressions, NAICS 5416, Detailed Race, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
Detailed Race/Ethnicity	.	.	.
	.	.	.
Black	0.510**** (-9.37)	0.572**** (-7.90)	0.629**** (-6.50)
Hispanic	0.660**** (-6.53)	0.770**** (-4.12)	0.770**** (-3.85)
Asian Pacific	0.683**** (-5.05)	0.683**** (-5.12)	0.637**** (-5.60)
Subcontinent Asian	0.952 (-0.44)	0.948 (-0.49)	0.888 (-1.02)
Alaska Native	0.952 (-0.19)	1.075 (0.28)	1.130 (0.47)
Other race	0.992 (-0.02)	1.077 (0.21)	1.125 (0.33)
Two or more races	0.639**** (-4.22)	0.739*** (-2.90)	0.752*** (-2.75)
Non-Hispanic white female?	.	.	.
	.	.	.
Non-Hispanic white female	0.659**** (-13.12)	0.659**** (-13.36)	0.675**** (-12.43)
Year	1.012 (1.15)	1.014 (1.39)	0.989 (-0.70)
Age		1.183**** (15.48)	1.142**** (11.09)
Age squared		0.998**** (-13.35)	0.999**** (-9.51)
Schooling		.	.
		.	.
Nursery school/preschool		1.668 (1.01)	1.321 (0.56)
Grade 9		1.991 (1.29)	1.725 (1.03)
Grade 10		0.913 (-0.16)	0.824 (-0.35)
Grade 11		1.410 (0.69)	1.213 (0.39)
12th grade - no diploma		1.400 (0.79)	1.238 (0.50)
Regular high school diploma		1.829* (1.68)	1.569 (1.26)
GED or alternative credential		1.838 (1.58)	1.687 (1.37)
Some college, but less than 1 year		1.620 (1.33)	1.461 (1.05)
1 or more years college credit, no degree		1.597 (1.31)	1.414 (0.98)
Associate's degree		1.377 (0.89)	1.198 (0.51)
Bachelor's degree		1.996* (1.95)	1.627 (1.38)
Master's degree		2.230**	1.756

Independent Variables	Specification		
	Model A	Model B	Model C
		(2.26)	(1.60)
Professional degree beyond a bachelor's degree		2.427**	1.804*
		(2.46)	(1.65)
Doctorate degree		2.112**	1.635
		(2.08)	(1.38)
NRCS region		.	.
		.	.
Northeast		1.103**	1.059
		(2.36)	(1.13)
Southeast		1.030	1.064
		(0.68)	(1.36)
West		1.154****	1.034
		(3.52)	(0.74)
Profess., Tech. & Sci. Services		.	.
		.	.
Interest and dividend income (log)			0.997
			(-1.22)
Home is owned free and clear			0.941
			(-1.47)
Property value			1.000****
			(13.83)
Married, spouse present			1.219****
			(5.09)
Number of children in family			1.043**
			(2.58)
Number of workers in family			0.869****
			(-5.44)
Lived in same house 1 year ago			0.986
			(-0.30)
Foreign born			1.070
			(0.78)
Years in U.S., if immigrant			1.001
			(0.30)
Speaks English well or very well			0.996
			(-0.08)
Veteran			0.995
			(-0.08)
Statewide general population			1.000
			(-0.01)
Statewide unemployment rate			0.980
			(-0.94)
Statewide government FTEs			1.000
			(0.76)
Statewide per capita income (log)			1.201
			(1.36)
Constant	30104.783****	189.564****	78.094***
	(279.83)	(12.10)	(2.86)
Adj. R-squared	0.016	0.059	0.075
Number of Obs.	14638	14638	14588

Source and Notes: See Table 4.5. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.6G. Annual Business Owner Earnings Regressions, NAICS 561M, Detailed Race, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
Detailed Race/Ethnicity	.	.	.
	.	.	.
Black	0.777	0.841	0.930
	(-1.22)	(-0.85)	(-0.34)
Hispanic	0.723*	0.810	0.823
	(-1.73)	(-1.11)	(-0.92)
Asian Pacific	0.519***	0.700	0.888
	(-2.68)	(-1.44)	(-0.43)
Subcontinent Asian	1.701	1.744	1.205
	(1.08)	(1.15)	(0.37)
Alaska Native	0.470	0.471	0.460
	(-1.06)	(-1.06)	(-1.11)
Other race	0.930	0.927	0.738
	(-0.07)	(-0.07)	(-0.29)
Two or more races	1.073	1.683	1.707
	(0.20)	(1.46)	(1.52)
Non-Hispanic white female?	.	.	.
	.	.	.
Non-Hispanic white female	0.718***	0.744***	0.771**
	(-3.12)	(-2.84)	(-2.48)
Year	1.086**	1.097***	1.094*
	(2.48)	(2.84)	(1.78)
Age		1.131****	1.112***
		(3.67)	(2.97)
Age squared		0.999***	0.999**
		(-2.83)	(-2.21)
Schooling		.	.
		.	.
Nursery school/preschool		1.447	1.373
		(0.33)	(0.29)
Grade 9		2.215	2.431
		(0.73)	(0.83)
Grade 10		0.838	0.817
		(-0.16)	(-0.18)
Grade 11		1.732	1.763
		(0.51)	(0.53)
12th grade - no diploma		0.157*	0.794
		(-1.83)	(-0.22)
Regular high school diploma		1.012	1.032
		(0.01)	(0.03)
GED or alternative credential		0.883	0.952
		(-0.13)	(-0.05)
Some college, but less than 1 year		0.750	0.778
		(-0.31)	(-0.27)
1 or more years college credit, no degree		0.723	0.730
		(-0.35)	(-0.34)
Associate's degree		0.635	0.676
		(-0.49)	(-0.42)
Bachelor's degree		1.100	1.010
		(0.10)	(0.01)
Master's degree		1.174	1.034

Independent Variables	Specification		
	Model A	Model B	Model C
		(0.17)	(0.04)
Professional degree beyond a bachelor's degree		0.784	0.715
		(-0.25)	(-0.34)
Doctorate degree		2.388	2.085
		(0.85)	(0.73)
NRCS region		.	.
		.	.
Northeast		1.133	0.938
		(0.90)	(-0.39)
Southeast		1.045	1.106
		(0.31)	(0.67)
West		0.971	0.877
		(-0.22)	(-0.91)
Admin. & Supportive Services		.	.
		.	.
Interest and dividend income (log)			0.998
			(-0.20)
Home is owned free and clear			1.008
			(0.06)
Property value			1.000****
			(4.21)
Married, spouse present			1.336**
			(2.32)
Number of children in family			0.986
			(-0.27)
Number of workers in family			0.879
			(-1.57)
Lived in same house 1 year ago			1.006
			(0.04)
Foreign born			0.970
			(-0.12)
Years in U.S., if immigrant			0.995
			(-0.54)
Speaks English well or very well			1.064
			(0.34)
Veteran			1.205
			(0.83)
Statewide general population			1.000
			(-1.35)
Statewide unemployment rate			1.069
			(0.95)
Statewide government FTEs			1.000
			(1.39)
Statewide per capita income (log)			1.922
			(1.45)
Constant	12603.275****	423.126****	0.402
	(78.72)	(5.08)	(-0.18)
Adj. R-squared	0.009	0.058	0.062
Number of Obs.	1599	1599	1590

Source and Notes: See Table 4.5. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.

Table 4.6H. Annual Business Owner Earnings Regressions, NAICS 5613, Detailed Race, 2014-2018

Independent Variables	Specification		
	Model A	Model B	Model C
Detailed Race/Ethnicity	.	.	.
	.	.	.
Black	0.440****	0.542****	0.748*
	(-5.60)	(-4.19)	(-1.94)
Hispanic	0.824	1.077	1.147
	(-1.20)	(0.45)	(0.77)
Asian Pacific	0.975	0.884	0.841
	(-0.10)	(-0.51)	(-0.64)
Subcontinent Asian	1.415	1.377	1.212
	(0.85)	(0.81)	(0.47)
Alaska Native	0.459	0.610	0.797
	(-1.52)	(-0.99)	(-0.39)
Other race	0.648	1.395	1.202
	(-0.62)	(0.48)	(0.27)
Two or more races	0.827	1.018	1.061
	(-0.65)	(0.06)	(0.22)
Non-Hispanic white female?	.	.	.
	.	.	.
Non-Hispanic white female	0.864	0.837*	0.822**
	(-1.43)	(-1.78)	(-1.98)
Year	1.038	1.029	0.996
	(1.21)	(0.96)	(-0.09)
Age		1.143****	1.052
		(4.70)	(1.64)
Age squared		0.999****	1.000
		(-3.65)	(-1.01)
Schooling		.	.
		.	.
Nursery school/preschool		0.744	0.874
		(-0.41)	(-0.19)
Grade 9		1.438	1.791
		(0.41)	(0.68)
Grade 10		0.647	1.251
		(-0.55)	(0.28)
Grade 11		0.482	0.887
		(-1.02)	(-0.16)
12th grade - no diploma		1.211	1.422
		(0.26)	(0.50)
Regular high school diploma		0.968	1.219
		(-0.05)	(0.32)
GED or alternative credential		0.711	0.838
		(-0.51)	(-0.27)
Some college, but less than 1 year		0.997	1.139
		(-0.01)	(0.21)
1 or more years college credit, no degree		1.346	1.540
		(0.47)	(0.70)
Associate's degree		1.421	1.465
		(0.55)	(0.62)
Bachelor's degree		1.970	1.943
7		(1.08)	(1.09)
Master's degree		1.567	1.486

Independent Variables	Specification		
	Model A	Model B	Model C
		(0.71)	(0.64)
Professional degree beyond a bachelor's degree		3.506*	2.875
		(1.88)	(1.63)
Doctorate degree		2.752	2.659
		(1.40)	(1.40)
NRCS region		.	.
		.	.
Northeast		1.060	1.130
		(0.48)	(0.86)
Southeast		1.183	1.307**
		(1.35)	(2.06)
West		1.148	0.994
		(1.12)	(-0.04)
Admin. & Supportive Services		.	.
		.	.
Interest and dividend income (log)			0.995
			(-0.58)
Home is owned free and clear			1.317**
			(2.57)
Property value			1.000****
			(6.20)
Married, spouse present			1.625****
			(4.59)
Number of children in family			1.123***
			(2.59)
Number of workers in family			0.877*
			(-1.82)
Lived in same house 1 year ago			0.958
			(-0.34)
Foreign born			1.300
			(0.98)
Years in U.S., if immigrant			1.004
			(0.42)
Speaks English well or very well			0.756*
			(-1.83)
Veteran			1.014
			(0.07)
Statewide general population			1.000*
			(1.74)
Statewide unemployment rate			0.964
			(-0.56)
Statewide government FTEs			1.000
			(-0.84)
Statewide per capita income (log)			1.189
			(0.43)
Constant	9600.393****	174.569****	107.218
	(77.01)	(5.90)	(1.06)
Adj. R-squared	0.014	0.080	0.127
Number of Obs.	2064	2064	2009

Source and Notes: See Table 4.5. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001.